cc47167

Phase I RFI/RI
Technical Memorandum Number 1
Response to Comments

Rocky Flats Plant
Inside Building Closures
(Operable Unit 15)

U S Department of Energy
Rocky Flats Plant
Golden, Colorado

Environmental Restoration Program

May 1994

ADMIN RECORD

Phase I RFI/RI
Technical Memorandum Number 1
Response to Comments

Rocky Flats Plant
Inside Building Closures
(Operable Unit 15)

U.S. Department of Energy
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Environmental Restoration Program

May 1994

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REVIEWED FOR CLASSIFICATION/UCNI
BY G T Ostdiek 6/22
DATE 5-10-94

INTRODUCTION

This document responds to comments received on the Draft Phase I RFI/RI Technical Memorandum No 1, Rocky Flats Plant Inside Building Closures (Operable Unit 15) February 1994 The document includes all comments received by April 15, 1994 This Response to Comments contains three sections corresponding to comments from the Colorado Department of Health, the Department of Energy, and EG&G Each section is organized by listing each comment followed immediately by a response A copy of the original comments are provided at the back of each section for reference

As a result of comments, substantial revision in format has been made to the Technical Memorandum Section 1 0 remains the Introduction Old Section 2 0 which describes sample collection has been moved to Section 3 0 The portions of old Section 3 0 which discussed historical information and the visual inspection have been moved to Section 2 0 Section 2 0 also contains additional historical information The data summary portion of old Section 3 0 has been moved to Section 5 0 for RCRA constituents and Section 6 0 for CERCLA constituents Old Section 4 0 has become Section 5 1 1 Old Section 5 1 has become Section 6 1 and old Section 5 2 has been deleted Old Section 6 0 has been split with the RCRA discussion going to Section 5 0 and the CERCLA discussion going to Section 6 0 Old Section 7 0 has become Section 8 0 Two new sections, Section 4 0 - Data Quality Evaluation, and Section 7 0 - Summary and Conclusions, have been added

CDH Comments

RESPONSE TO COLORADO DEPARTMENT OF HEALTH MARCH 31, 1994 COMMENTS ON OPERABLE UNIT 15 DRAFT TECHNICAL MEMORANDUM NUMBER 1 ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES

GENERAL COMMENTS

Comment 1 Scope of Technical Memorandum #1 - The Division does not believe that the current scope and focus of Technical Memorandum #1 (TM 1) is consistent with the approved OU 15 RFI/RI Work Plan The purpose of TM 1 should be limited to presenting the results of the Stage I and Stage II Field Sampling effort and DOE's evaluation of the need for Stage III and/or Verification sampling Therefore, the Division recommends that DOE remove the Baseline Risk Assessment from the scope of TM 1

Additionally, the Division would like to clarify that the scope of the decision regarding TM 1 is limited to the need to conduct additional stages of investigation to meet the objectives of the OU 15 Phase 1 RFI/RI Report This is not a remedial action decision document, and approval of this document does not constitute the Division's certification of clean closure or approval of a No Further Action decision regarding potential remedial action at OU-15 Such a decision can only be made after appropriate public comment

Response It is fully understood that approval of TM#1 by the Division does not in any way constitute approval of decisions regarding clean closure of the OU15 IHSSs However, the need for further investigation both inside the IHSSs (verification sampling) and outside the buildings (Stage III) is dependent on whether 1) the IHSSs have met the RCRA clean closure performance standards, 2) there is evidence indicating releases from the IHSSs, and 3) the IHSSs contain unacceptable levels of radionuclides from a CERCLA standpoint Originally, it was proposed that risk-based concentrations be used for RCRA closure performance standards, thus the inclusion of risk calculations in TM#1 However, this approach has been modified to use detection limits and background concentrations as RCRA performance standards Therefore, the calculation of risk-based screening levels has been eliminated from TM#1 The evaluation of radionuclide levels, however, has been retained in order to facilitate the decision process from a CERCLA perspective

Comment 2 Determination of Clean Closure Performance Status - The Division does not consider risk based screening levels appropriate as clean closure performance standards for the IHSSs in OU 15 As stated in the Work Plan, the Clean Closure Performance Standard is generally applied through decontamination and/or removal of any detectable hazardous waste constituents The Division's requirements for clean closure at OU 15 are specified in the Rocky Flats Plant Hazardous Waste Permit and discussed below

- Treatment Units - To meet clean closure standards at hazardous waste treatment units in OU 15, steam rinsate samples must not contain detectable levels of chemicals of regulatory concern for that limit The chemicals of regulatory concern at treatment units are the hazardous wastes that were specifically treated by the units Chemicals of regulatory concern at IHSS 204 (Uranium Chip Roaster) are volatile organic compounds (solvents and coolants from uranium machining) At IHSS 217 (Cyanide Hood) the only chemical of regulatory concern is cyanide

  Rinsate samples from IHSS 217 [sic, should be 204] did not contain detectable levels of VOCs and rinsate samples from IHSS 217 do not contain cyanide Therefore, both IHSSs have sufficient information to show attainment of the clean closure performance standards, and verification sampling is not necessary

- Drum Storage Units - To meet clean closure standards at hazardous waste drum storage units in OU 15, steam rinsate samples must not contain detectable levels of hazardous constituents reasonably expected to be at the unit Hazardous constituents are listed in 6 CCR 1007-3 Part 261 Appendix VIII Drum storage units at OU 15 include IHSS 178, 179, 180 and 211

  Equipment blanks must be collected to determine the source of phthalates in the OU 15 rinsate samples before clean closure can be demonstrated Chemical hits that can not be attributed to sampling equipment should be compared to the list of hazardous constituents (Part 261 Appn VIII) A determination should then be made by DOE as to whether any remaining hazardous constituents are reasonably expected to be at that IHSS If DOE does not consider the remaining hazardous constituents reasonably expected to be at an IHSS the argument should be presented to the Division for concurrence Verification sampling must be conducted for those hazardous constituents reasonably expected to be present and detected at the IHSS Verification sampling should be limited to only the hazardous constituents identified during stage I sampling

Response Risk-based closure performance standards have been eliminated from TM#1 In addition, the evaluation of radionuclides (which does not follow the RCRA performance standards) has been moved to a separate section to clarify the evaluation of RCRA constituents The RCRA performance standards described above are now used in TM#1 to evaluate the hot water rinsate results for each IHSS

Equipment blank samples have been run, and the results are presented in Section 4 0 These results have been used to aid in the evaluation of chemical results from hot water rinsate sampling performed at each IHSS

Verification sampling, where necessary, is described in Section 7 0 It is agreed that verification sampling will be performed for only those RCRA constituents detected in the actual IHSS sampling locations

Comment 3 Data Usability and QA/QC Evaluation - TM 1 reports that QA/QC samples were collected along with steam rinsate samples during this investigation However, the QA/QC data is not reported or analyzed Before any conclusions can be reached or decisions made based on the OU 15 field data a QA/QC analysis must be conducted to prove the useability and defensibility of the field data The analysis must include a review of detection limits

The representativeness, of the stream rinsate data to characterize the condition of the floors in the IHSSs is questionable without knowing the impact of sampling equipment of the analytical results It is clearly possible that the majority of the organic analytes detected in the IHSS rinsate samples are artifacts of the sampling process However, no data has been collected to confirm this hypothesis A full review of the QA/QC sampling plan and its appropriateness should be conducted and any additional sampling and analysis necessary to confirm the representativeness of the rinsate sampling performed

Response An analysis of the QA/QC data is provided in Section 4 0 This analysis includes the results of recently obtained equipment blank samples, as well as other blank samples and an evaluation of sample detection limits

SPECIFIC COMMENTS

Comment 1 Section 1 1, page 1-1 - The reference to the overall objectives of the OU 15 RFI/RI should be to the Introduction (Section 1 page 1-1 and 1-2) of the Work Plan or Section 4 1 instead of Section 4 0 The four purpose statements are listed explicitly in the Work Plan Introduction and similarly in Section 4 1 but not in Section 4 0 Section 4 0 lists the five general goals of an RFI/RI

Response The reference has been corrected as suggested

Comment 2 Section 1 1, page 1-2 second paragraph - The first sentence in this paragraph must be corrected to reflect DOE's role and responsibilities in the RFI/RI process TM 1 is being prepared and submitted by DOE and it's subcontractors to the CDH and EPA This sentence must be modified to reflect this fact The Division concurs with the remainder of this paragraph and applauds DOE and it's subcontractors for it's efforts to work with the Division on OU 15

Response The sentence has been modified as requested

Comment 3 Section 1 2 page 1-3 last paragraph - This paraphrasing of the IAG Statement of Work is not entirely correct and should be clarified Section I B 11 a Interim Status Closure Units Inside Buildings (OU 15), states that if there has not been

a release and there is not a threat of a release, then CDH and EPA will require no further action at OU 15 Additionally, it states that if there has been or is a threat of release then further action may be required It is important that all parties recognize that if there was not a release no further action is required, but if there was a release the decision of further action is at the discretion of CDH and EPA The Division reads the current language in this paragraph of TM 1 to presume that additional investigation will be required, which may or may not be the case

Response The TM#1 has been modified to more clearly state the position of the IAG with respect to potential releases In addition, the discussion of potential releases contained in Section 2 0 has been updated with additional information

Comment 4 Section 1 4 page 1-4 top of page - The requirements for submittal of a BRA for OU 15 are specifically discussed in Section 8 0 Human Health Risk Assessment Plan and Section 9 0 Environmental Evaluation of the OU 15 Phase I RFI/RI Work Plan Specifically Section 8 1 of the Work Plan (page 8-1) states,

> "However, the IHSSs in OU 15 are RCRA Closure Units to which the Clean Closure Performance Standards will be applied (see Section 3 0) and are all located inside buildings Because the Clean Closure Performance Standards are risk-based standards, barring evidence of potential release of contaminants outside the IHSS, no HHRA should be necessary If sampling or historical information indicate the presence of residual hazardous substances that pose a threat of release, a BRAP will be submitted in a technical memorandum in accordance with Sections VII D 1a, VII D 1 b, and VII D 1 c of the IAG Statement of Work "

The Division recommends that DOE reevaluate the decision to designate this submittal as tech memos 1 and 2 of a OU-15 Baseline Risk Assessment If, as DOE proposes in this tech memo, NFA is pursued at OU 15 a BRA should not be necessary If further action is deemed necessary at OU 15 then a BRA will be necessary and the BRA tech memos listed on page 1-4 of this tech memo would be required to address the specific concerns of that specific further action

The Division recommends that DOE restrict the purpose of TM 1 to the work plan requirements of submittal of field sampling results and evaluation of the need for stage 3 and verification sampling

Response TM#1 no longer addresses any part of the BRA The need for a BRA will be determined based on the need for further action, as suggested

Comment 5 Section 3 0 - As stated in Section 2 1 Sampling Plan of this tech memo, activities performed as part of the investigation include a review of new and/or additional information, visual inspection and documentation of current conditions, and sampling and analysis of surfaces within each IHSS area However, the review

of new and/or additional information is not included in Section 3, Presentation of Results It is the Divisions understanding that there is additional historical information regarding many of these IHSS, as well as new data relevant to the OU-15 investigation If this information is pertinent to the future direction of the OU-15 investigation is must be reported and discussed along with the OU-15 field sampling results in this tech memo

Response Additional historical information has been gathered and is presented in Section 2 0 along with the historical use and visual inspection information

Comment 6 Section 3 0, page 3-1 second paragraph - The statement, "Only those constituents that were detected by the laboratory analysis of the hot rinsate sample results are reported in the sections below " must be clarified It is the Division's understanding that only positively identified constituents that were present above detected limits and not present in laboratory blanks are considered "hits" and included in this section Therefore tentatively identified compounds or TICs, as well as constituents identified at below the detection limits and B qualified organics are excluded from this section The Division recommends that this statement be clarified in the tech memo Additionally, it should be noted in the text that the complete set of sampling results are included on the computer disks submitted with TM 1

Response The definition of a "hit" is clarified in the text in Section 5 1 1 A reference to the inclusion of computer disks has also been added to Section 1 4

Comment 7 Section 3 1 through 3 6, Presentation of IHSS Specific Results - In presenting the results of field sampling for each specific IHSS many sections of the text (Section 3 1 through 3 6) are redundant and for the most part unnecessary For example, the text in section 3 1 is repeated for every IHSS with only the IHSS number modified This type of introductory statement is not necessary for every IHSS and should be included once in the introduction to the section

Response Where possible, the degree of redundancy has been reduced as suggested

Comment 8 Section 3 x 3 Data Presentation for IHSS xxx - These sections should not be limited to directing the reader the appropriate sampling result tables A brief discussion summarizing the results and highlighting any unusual or significant results should be added to this section

Also, it is not necessary to repeat the entire citation for the series of results tables for every IHSS A simple statement such as, "Results of the Stage I and II investigations for IHSS xxx are presented in tables 3 x 1 through 3 x 4 " is sufficient to guide the reader to the appropriate tables

Response A discussion has been added for each of the IHSS data presentations, now contained in Sections 5 2 through 5 7 The degree of redundancy has been

reduced where possible

Comment 9 Section 3 1 1, page 3-2 - A listing of the waste codes currently being stored at IHSS 178 as a 90 day accumulation area should be complied and compared to the work plan list and rinsate sampling results to determine any possible impact of recent operations of sampling results

Response No drums were stored in IHSS 178 as observed during a visit conducted on April 28, 1994 In addition, no drums were observed in IHSS 178 at any time during the visits associated with the Stage I and II field investigations Drums are, however, stored in IHSS 211 The following waste codes may be accumulated in Room 266B D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D035, F001, F002, F003, and F005

Comment 10 Tables 3 x 1 Hot Water Rinsate Chemical Results (Hits Only) - A review of the rinsate sampling results submitted on computer disk and the respective tables indicate that these tables are incomplete Several chemicals were found on the computer data set that should have been included in the tables For example, hexadecanoic acid is reported at IHSS 178 but not in Table 3 3-1 The Division recommends that DOE review the criteria used to select results for reporting in all summary tables in TM 1 and make any corrections necessary

Response The results for hexadecanoic acid at IHSS 178 were labeled with a RESULT TYPE of "TIC", indicating that the compound was only tentatively identified as hexadecanoic acid Furthermore, the results were qualified with a "J" qualifier, indicating that the results reported were below the sample detection limit Verbal direction from the Colorado Department of Health indicated that results below the stated detection limits were not to be considered This approach is stated in Section 5 1 1 The data presented in the revised TM#1 have been carefully checked against the procedures stated in Section 5 1 1 for data extraction and filtering

Comment 11 Section 4 0, page 4-1 - The introduction of this section should clearly delineate the scope of the COC selection process and its relationship to CHWA Closure requirements and CERCLA Baseline Risk Assessment requirements

As stated in the approved OU 15 RFI/RI Work Plan and noted in Division comments to Section 1 of this TM, if no further action is required at OU-15 a baseline risk assessment should not be necessary

Response This section has been eliminated from the revised TM#1 Selection of constituents for RCRA evaluation follows the RCRA closure performance standard, and is described for each IHSS in Section 5 0

A BRA is not proposed for any IHSS for which NFA is recommended. In addition, a BRA will not be proposed for any IHSS for RCRA constituents, since

IHSSs will undergo verification sampling to show compliance with the RCRA clean closure performance standards A BRA may be proposed for IHSSs which show unacceptable levels of radionuclides from a CERCLA standpoint, however, such a condition was not observed for any of the OU15 IHSSs Therefore, we are not proposing any BRA work at this time

Comment 12 Section 4 0, page 4-1 - The statement that RAGS calls for a screening process to reduce the number of constituents at a site based on concentrations and toxicities of constituents detected is misleading and unnecessary A review of RAGS Part A Section 5 9, Further Reduction in the Number of Chemicals (Optional), indicated that screening of chemicals is optional and should only be done when carrying a large number of chemicals through the process is not practical The use of such screens is not "typical" or "called for" in RAGS The Division recommends deleting this reference to RAGS and optional screening processes in this tech memo

Response This section has been eliminated from the revised TM#1

Comment 13 Section 4 0, page 4-1 and 4-2 - In general the division concurs with the process of evaluating the OU 15 rinsate data to determine if hazardous constituents have been detected However, as stated in the General Comments to this TM, the Division does not consider risk based screening levels appropriate as clean closure performance standards for IHSS at OU 15 The Division offers the following comments and concerns on the selection criteria

> "U" Qualified Results - A discussion of maximum acceptable detection limits for elimination of compounds from further consideration based on non-detect should be included in this tech memo (see General Comment - Data Usability)
>
> QC CODE of "REAL" - Samples with a QC CODE of "DUP" should also be considered in the evaluation of rinsate samples The results of duplicate sample analysis are equally valid Where multiple results are reported for a single sample, without dilution, the Division recommends that, as a conservative approach, the maximum of the two sample results be used in the evaluation Multiple dilution results should be individually scrutinized to determine what results are most appropriate

Response Risk-based performance standards have been eliminated from the revised TM#1 and replaced with the standards given in General Comment #2

A discussion of detection limits and other QA/QC sample results is provided in Section 4 0 Samples with a QC CODE of DUP" are presented in the data tables for each IHSS, and are included in the data evaluation In addition, a discussion of relative percent differences (RPDs) between original and duplicate samples is given in Section 4 0

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH
Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr S
Denver, Colorado 80222-1530
Phone (303) 692-2000

Laboratory Building
4210 E 11th Avenue
Denver Colorado 80220 3716
(303, 691 4700

Roy Romer
Governor

Patricia A Nolan MD MPH
Executive Director

March 31, 1994

Mr Richard J Schassburger
U S Department of Energy
Rocky Flats Office, Bldg 116
P O Box 928
Golden, Colorado 80402-0928

RE· Comments - Draft Phase I RFI/RI Technical Memorandum No. 1, Rocky Flats Plant Inside Building Closures (Operable Unit 15) February 1994

Dear Mr Schassburger,

The Colorado Department of Health, Hazardous Materials and Waste Management Division (the Division), has reviewed the above referenced document submitted by DOE and prime operating contractor, EG&G The Division's comments are attached Comments from the EPA will be forwarded under separate cover on receipt by the Division

The Division is generally pleased with this draft submittal However, as discussed at the March 17, 1994 meeting with your staff, some regulatory and technical issues must be incorporated into this document in order to make a complete determination on the need for verification sampling, which will be used to certify attainment of Clean Closure Performance Standards at several OU 15 IHSSs

These issues are discussed in detail in the attached comments Included are discussions of the collection of additional equipment blanks to verify the hypothesis that phthalates in steam rinsate samples are associated with sampling hoses, evaluation of data usability and QA/QC samples, and modification to the decision logic for determining the need for verification sampling to meet the clean closure performance standards

The Division commends DOE and EG&G for the continued cooperation and open communication on OU-15. The Division recognizes that concurrent review of this document with DOE is a major step toward streamlining the review process

If you have any questions, please call Jeff Swanson of my staff at 692-3416

Sincerely,

Gary W Baughman, Chief
Facilities Section
Hazardous Waste Control Program

cc Martin Hestmark, EPA
Bill Fitch, DOE
Dennis Schubbe, EG&G
Steve Tarlton, CDH-OE

Colorado Department of Health
Hazardous Materials and Waste Management Division

Technical Memorandum No 1 Contaminant Identification and Exposure Assessment
Operable Unit 15 - Inside Building Closures

Comments

GENERAL COMMENTS

Scope of Technical Memorandum #1 - The Division does not believe that the current scope and focus of Technical Memorandum #1 (TM 1) is consistent with the approved OU 15 RFI/RI Work Plan The purpose of TM 1 should be limited to presenting the results of the Stage I and Stage II Field Sampling effort and DOE's evaluation of the need for Stage III and/or Verification sampling Therefore, the Division recommends that DOE remove the Baseline Risk Assessment from the scope of TM 1.

Additionally, the Division would like to clarify that the scope of the decision regarding TM 1 is limited to the need to conduct additional stages of investigation to meet the objectives of the OU 15 Phase 1 RFI/RI Report This is not a remedial action decision document, and approval of this document does not constitute the Division's certification of clean closure or approval of a No Further Action decision regarding potential remedial action at OU-15 Such a decision can only be made after appropriate public comment

Determination of Clean Closure Performance Status - The Division does not consider risk based screening levels appropriate as clean closure performance standards for the IHSSs in OU 15 As stated in the Work Plan, the Clean Closure Performance Standard is generally applied through decontamination and/or removal of any detectable hazardous waste constituents The Division's requirements for clean closure at OU 15 are specified in the Rocky Flats Plant Hazardous Waste Permit and discussed below

- Treatment Units - To meet clean closure standards at hazardous waste treatment units in OU 15, steam rinsate samples must not contain detectable levels of chemicals of regulatory concern for that unit The chemicals of regulatory concern at treatment units are the hazardous wastes that were specifically treated by the units Chemicals of regulatory concern at IHSS 204 (Uranium Chip Roaster) are volatile organic compounds (solvents and coolants from uranium machining) At IHSS 217 (Cyanide Hood) the only chemical of regulatory concern is cyanide

  Rinsate samples from IHSS 217 did not contain detectable levels of VOCs and rinsate samples from IHSS 217 do not contain cyanide Therefore, both IHSSs have sufficient information to show attainment of the clean closure performance standards, and verification sampling is not necessary

- Drum Storage Units - To meet clean closure standards at hazardous waste drum storage units in OU 15, steam rinsate samples must not contain detectable levels of hazardous constituents reasonably expected to be at the unit Hazardous constituents are listed in 6 CCR 1007-3 Part 261 Appendix VIII Drum storage units at OU 15 include IHSS 178, 179, 180 and 211

  Equipment blanks must be collected to determine the source of phthalates in the OU 15 rinsate samples before clean closure can be demonstrated Chemical hits that can not be attributed to sampling equipment should be compared to the list of hazardous constituents (Part 261 Appn VIII) A determination should then be made by DOE as to whether any remaining hazardous constituents are reasonably expected to be at that IHSS If DOE does not consider the remaining hazardous constituents reasonably expected to be at an IHSS the argument should be presented to the Division for concurrence Verification sampling must be conducted for those hazardous constituents reasonably expected to be present and detected at the IHSS Verification sampling should be limited to only the hazardous constituents identified during stage I sampling

Colorado Department of Health
Hazardous Materials and Waste Management Division

Technical Memorandum No 1 Contaminant Identification and Exposure Assessment
Operable Unit 15 - Inside Building Closures

Comments

Data Usability and QA/QC Evaluation - TM 1 reports that QA/QC samples were collected along with steam rinsate samples during this investigation However, the QA/QC data is not reported or analyzed Before any conclusions can be reached or decisions made based on the OU 15 field data a QA/QC analysis must be conducted to prove the usability and defensibility of the field data The analysis must include a review of detection limits

The representativeness of the stream rinsate data to characterize the condition of the floors in the IHSSs is questionable without knowing the impact of sampling equipment of the analytical results It is clearly possible that the majority of the organic analytes detected in the IHSS rinsate samples are artifacts of the sampling process However, no data has been collected to confirm this hypothesis A full review of the QA/QC sampling plan and its appropriateness should be conducted and any additional sampling and analysis necessary to confirm the representativeness of the rinsate sampling performed

Colorado Department of Health
Hazardous Materials and Waste Management Division

Technical Memorandum No 1 Contaminant Identification and Exposure Assessment
Operable Unit 15 - Inside Building Closures

Comments

SPECIFIC COMMENTS.

Section 1 1, page 1-1 - The reference to the overall objectives of the OU 15 PFI/RI should be to the Introduction (Section 1 page 1-1 and 1-2) of the Work Plan or Section 4 1 instead of Section 4 0 The four purpose statements are listed explicitly in the work plan Introduction and similarly in Section 4 1 but not in Section 4 Section 4 0 lists the five general goals of an RFI/RI

Section 1 1, page 1-2 second paragraph - The first sentence in this paragraph must be corrected to reflect DOE's role and responsibilities in the RFI/RI process TM 1 is being prepared and submitted by DOE and it's subcontractors to the CDH and EPA This sentence must be modified to reflect this fact The Division concurs with the remainder of this paragraph and applauds DOE and it's subcontractors for its efforts to work with the Division on OU 15

Section 1 2, page 1-3 last paragraph - This paraphrasing of the IAG Statement of Work is not entirely correct and should be clarified Section I B 11 a Interim Status Closure Units Inside Buildings (OU 15), states that if there has not been a release and there is not a threat of a release, then CDH and EPA will require no further action at OU 15 Additionally, it states that if there has been or is a threat of release then further action may be required It is important that all parties recognize that if there was not a release no further action is requires, but if there was a release the decision of further action is at the discretion of CDH and EPA The Division reads the current language in this paragraph of TM 1 to presume that additional investigation will be required, which may or may not be the case

Section 1 4, page 1-4 top of page - The requirements for submittal of a BRA for OU 15 are specifically discussed in Section 8 0 Human Health Risk Assessment Plan and Section 9 0 Environmental Evaluation of the OU 15 Phase I RFI/RI Work Plan Specifically Section 8.1 of the Work Plan (page 8-1) states,

> "However, the IHSSs in OU 15 are RCRA Closure Units to which the Clean Closure Performance Standards will be applied (see Section 3 0) and are all located inside buildings Because the Clean Closure Performance Standards are risk-based standards, barring evidence of potential release of contaminants outside the IHSS, no HHRA should be necessary If sampling or historical information indicate the presence of residual hazardous substances that pose a threat of release, a BRAP will be submitted in a technical memorandum in accordance with Sections VII D 1a, VII D 1 b, and VII D 1 c of the IAG Statement of Work "

The Division recommends that DOE reevaluate the decision to designate this submittal as tech memos 1 and 2 of a OU-15 Baseline Risk Assessment If, as DOE proposes in this tech memo, NFA is pursued at OU 15 a BRA should not be necessary If further action is deemed necessary at OU 15 then a BRA will be necessary and the BRA tech memos listed on page 1-4 of this tech memo would be required to address the specific concerns of that specific further action

The Division recommends that DOE restrict the purpose of TM 1 to the work plan requirements of submittal of field sampling results and evaluation of the need for stage 3 and verification sampling

Comments

Section 3 - Presentation of Results

Section 3 0 - As stated in Section 2 1 Sampling Plan of this tech memo, activities performed as part of the investigation include a review of new and/or additional information, visual inspection and documentation of current conditions, and sampling and analysis of surfaces within each IHSS area However, the review of new and/or additional information is not included in section 3, Presentation of Results It is the Divisions understanding that there is additional historical information regarding many of these IHSS, as well as new data relevant to the OU-15 investigation If this information is pertinent to the future direction of the OU-15 investigation is must be reported and discussed along with the OU-15 field sampling results in this tech memo

Section 3 0, page 3-1 second paragraph - The statement, "Only those constituents that were detected by the laboratory analysis of the hot rinsate sample results are reported in the sections below " must be clarified It is the Division's understanding that only positively identified constituents that were present above detectable limits and not present in laboratory blanks are considered "hits" and included in this section Therefore tentatively identified compounds or TICs, as well as constituents identified at below the detection limits and B qualified organics are excluded from this section The Division recommends that this statement be clarified in the tech memo Additionally, it should be noted in the text that the complete set of sampling results are included on the computer disks submitted with TM 1

Section 3 1 through 3 6, Presentation of IHSS Specific Results - In presenting the results of field sampling for each specific IHSS many sections of the text (Section 3 1 through 3 6) are redundant and for the most part unnecessary For example, the text in section 3 1 is repeated for every IHSS with only the IHSS number modified This type of introductory statement is not necessary for every IHSS and should be included once in the introduction to the section

Section 3 x 3 Data Presentation for IHSS xxx - These sections should not be limited to directing the reader the appropriate sampling result tables A brief discussion summarizing the results and highlighting any unusual or significant results should be added to this section

Also, it is not necessary to repeat the entire citation for the series of results tables for every IHSS A simple statement such as, "Results of the Stage I and II investigations for IHSS xxx are presented in tables 3 x 1 through 3 x 4 " is sufficient to guide the reader to the appropriate tables

Section 3 1 1, page 3-2 - A listing of the waste codes currently being stored at IHSS 178 as a 90 day accumulation area should be compiled and compared to the work plan list and rinsate sampling results to determine any possible impact of recent operations of sampling results

Tables 3 x 1 Hot Water Rinsate Chemical Results (Hits Only) - A review of the rinsate sampling results submitted on computer disk and the respective tables indicate that these tables are incomplete Several chemicals were found on the computer data set that should have been included in the tables For example, hexadecanoic acid is reported at IHSS 178 but not in Table 3 3-1 The Division recommends that DOE review the criteria used to select results for reporting in all summary tables in TM 1 and make any corrections necessary

Comments

Section 4.0 Selection of Constituents of Concern

Section 4 0, page 4-1 - The introduction of this section should clearly delineate the scope of the COC selection process and its relationship to CHWA Closure requirements and CERCLA Baseline Risk Assessment requirements

As stated in the approved OU 15 RFI/RI Work Plan and noted in Division comments to Section 1 of this TM, if no further action is required at OU-15 a baseline risk assessment should not be necessary

Section 4 0, page 4-1 - The statement that RAGS calls for a screening process to reduce the number of constituents at a site based on concentrations and toxicities of constituents detected is misleading and unnecessary A review of RAGS Part A Section 5 9, Further Reduction in the Number of Chemicals (Optional), indicated that screening of chemicals is optional and should only be done when carrying a large number of chemicals through the process is not practical The use of such screens is not "typical" or "called for" in RAGS The Division recommends deleting this reference to RAGS and optional screening processes in this tech memo

Section 4 0, page 4-1 and 4-2 - In general the Division concurs with the process of evaluating the OU 15 rinsate data to determine if hazardous constituents have been detected However, as stated in the General Comments to this TM, the Division does not consider risk based screening levels appropriate as clean closure performance standards for IHSS at OU 15 The Division offers the following comments and concerns on the selection criteria

"U" Qualified Results - A discussion of maximum acceptable detection limits for elimination of compounds from further consideration based on non-detect should be included in this tech memo (see General Comment - Data Usability)

QC CODE of "REAL" - Samples with a QC CODE of "DUP" should also be considered in the evaluation of rinsate samples The results of duplicate sample analysis are equally valid Where multiple results are reported for a single sample, without dilution, the Division recommends that, as a conservative approach, the maximum of the two sample results be used in the evaluation Multiple dilution results should be individually scrutinized to determine what results are most appropriate

DOE Comments

RESPONSE TO DOE COMMENTS ON OPERABLE UNIT 15
DRAFT TECHNICAL MEMORANDUM NUMBER 1
ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES

GENERAL COMMENTS

Comment 1 The source of beryllium contamination and how this contamination is to be addressed should be further explained Although beryllium is detected at several Individual Hazardous Substance Sites (IHSSs), the document concludes that such beryllium (see Specific Comment 11) will not affect pursuing clean closure and should be addressed as a general building concern Please elaborate as to how the beryllium contamination will be addressed and how the data collected during this action will be incorporated into further investigations Clean closure of the IHSSs may be inappropriate before the beryllium contamination issue is resolved

Response The following text has been added to Section 6 8 2 to address the beryllium issue

The presence of beryllium surface contamination in excess of the Rocky Flats Plant beryllium smear control level of 25 micrograms per square foot (approximately 2 7 micrograms per 100 square centimeters), as established in the Rocky Flats Plant Health and Safety Practices HSP 13 04, was detected during smear sampling in IHSSs 179 and 180 However, the pattern of detections and the relative magnitude of the results within and around each of the IHSSs did not indicate that the beryllium surface contamination was attributable to the storage of wastes in the IHSSs A pattern of detections showing higher beryllium levels within the IHSS versus areas around the IHSS would be indicative that the IHSS was the beryllium source Instead the sampling results suggested that the presence of beryllium may be associated with other operations in the respective buildings The beryllium detections were apparently random in location and magnitude with respect to the IHSS, and did not indicate a higher frequency or magnitude of detections within the IHSS versus outside the IHSS Beryllium may have been commingled with the RCRA-regulated wastes stored in drums in the IHSSs, but was not itself subject to regulation Beryllium is only RCRA-regulated as a discarded or off-specification chemical product that is essentially pure in form Such a waste (e g , beryllium dust) would carry an EPA Code of P015

IHSSs 179 and 180 should be able to proceed with the RCRA closure process despite the presence of beryllium The RCRA Clean Closure Performance Standards specified in the RFP State RCRA Permit address only Toxicity Characteristic metals, which do not include beryllium Furthermore, results from the OU15 Stage I and II field investigations did not indicate that beryllium contamination had migrated from the IHSS locations to outside the buildings Although not a RCRA concern, beryllium contamination in IHSSs 179 and 180 will need to be addressed prior to completing building decontamination and

decommissioning or economic redevelopment Beryllium contamination will be addressed on a building-wide basis in accordance with the requirements of HSP 13 04

Comment 2 The report presents two instances, Specific Comments 7 and 10, where detection levels were higher than the screening levels The report should discuss whether these detections were the result of the screening level being reduced after the surveys or if proposed detection limits were not achieved during this investigation

Response Since risk-based screening levels are no longer a part of the Technical Memorandum, and will not be used as clean closure performance criteria, this comment no longer applies to the revised Technical Memorandum

Comment 3 The engineering drawings in Figures 2-2 to 2-20 are presented without a scale Please provide the scale for each drawing

Response A scale is not included on the drawings due to concerns over classification of the document as Unclassified Controlled Nuclear Information (UCNI) Past experience with drawing classification has indicated that drawings that show the location of an area within a building and contain scales and north arrows may be considered UCNI Drawings which are classified UCNI could not be released to the public or administrative record, therefore, a scale has not been added

SPECIFIC COMMENTS

Comment 1 Section 1 4, page (p) 1-5, last paragraph, first sentence The sentence states that Section 2 0 of this document summarizes the Field Sampling Plan However, the section summarizes only the quantity and location of the samples collected during the Phase I Resource Conservation and Recovery Act Facility Investigation (RFI)/Remedial Investigation (RI) process and the rationale for the sampling is essentially explained in Section 3 The text would be much clearer if Section 2 is merged into Section 3

Response Section 3 0 has now been split into Sections 5 0 and 6 0 to accommodate revisions to the TM #1 The text has been clarified in Section 1 0 to indicate that Section 2 0 only summarizes the scope of work and methods proposed in the FSP

Comment 2 Section 2 4, p 2-8, second paragraph Please provide a summary table showing the results of the quality control sampling The listing in Section 3 does not provide a specific break-out providing these sample results

Response Quality control sampling results are now discussed in a separate Data Quality section, Section 4 0 A listing and discussion of the quality control sample results

are provided

Comment 3 Section 2 5, p 2-10, first paragraph Please clarify the system limitations that did not allow for input of sample locations If the system was unable to track sample locations, then please explain how this information will not be "lost" over time

Response This sentence was modified to explain the incompatibility between smear/survey data and RFEDS A sentence was added to indicate that these results will be maintained in hard copy form in the project files

Comment 4 Section 3 0, p 3-1, second paragraph If possible the data presented in the tables should be identified as validated or invalidated If this report is going to be used for making the decision not to conduct planned field work, then representation of invalidated data is necessary to adequately evaluate the decision for No Further Action at these IHSSs

Response The validation status of each result is now included in the data tables

Comment 5 Section 4 0, p 4-1, first paragraph Please clarify the purpose of the screening process that is used It appears that the screen is to both include and exclude contaminants of concern, but the process is not well described

Response The material previously presented in Section 4 0 regarding selection of constituents of concern has been eliminated due to the elimination of risk-based performance standards Therefore, this comment is no longer applicable Please refer to Section 5 1 1 for the selection of constituents to be evaluated for RCRA considerations Section 6 0 now states that all detected radionuclides were included in the CERCLA evaluation

Comment 6 Section 4 0, p 4-1, second paragraph Please clarify the last sentence in this paragraph Specifically identify what constitutes "chemical quality assurance reasons "

Response See response to above comment In addition, please refer to the Data Quality Evaluation in Section 4 0

Comment 7 Section 4 0, p 4-2, last paragraph The text indicates that the fixed alpha and beta-radiation survey will not be evaluated further because of the high detection limit and the variability of the results This decision raises the question concerning the original goals and data quality objectives of the fixed alpha-and beta-radiation survey Please clarify

Response Additional clarification has been added describing the purpose of the fixed alpha- and beta-radiation surveys, and how the exclusion of these data does not impact

the data quality objectives

Comment 8 Section 5 1, p 5-6, last paragraph This paragraph indicates that a more conservative dust-loading value (Hawley, 1985) is used instead of the Nuclear Regulatory Commission (NRC) approach Please explain why a more conservative dust load value is used, (i e , does the NRC approach cause unacceptable uncertainty or risk)

Response The NRC guidance document was published as a final version, and the TM #1 has been revised to use the dust loading value cited therein

Comment 9 Section 6 2, p 6-3, second paragraph The chemical constituent bis(2-ethylhexyl)phthalate (DEHP) detected is interpreted to be the result of the use of plastic components in the hot water rinsate If the interpretation has not been tested by sampling the water in contact with plastic component, then DEHP should not be eliminated as a chemical of concern If this has been done, then the results of the study should be referenced in the text

Response Equipment blanks have been run with the equipment operating using distilled water on a clean glass surface These blank data are now included in the revised Technical Memorandum in Section 4 0 Bis(2-ethylhexyl)phthalate was detected at concentrations up to 28 μg/l in the hot water rinsate blanks

Comment 10 Section 6 4 1 1, p 6-7, third paragraph, second sentence The sentence states that the method detection limit for beryllium is substantially above the screening level As shown in Table 5-3, the noncarcinogenic screening level is 9660 mg/kg and carcinogenic screening level is 1 24 mg/kg It is unclear why the method detection limit is substantially above these levels Please indicate the method detection limit In addition, if the method detection limit is substantially higher, the function of the conservative screening level is unclear Please clarify

Response Since risk-based screening levels are no longer a part of the Technical Memorandum, and will not be used as clean closure performance criteria, this comment no longer applies to the revised Technical Memorandum Section 6 8 2 has been added to address the beryllium issue

Comment 11 Section 6 4 1 1, p 6-7, third paragraph The text states that the beryllium may be associated with other operations in Building 865 and is not associated specifically to IHSS 179, therefore, "further action on beryllium contamination should not be required to clean close IHSS 179 " The same conclusions are also drawn for other IHSSs discussed in this technical memorandum Regardless of the source of the contamination, it is not clear how clean closure could be reached if the IHSSs have been contaminated Please clarify

Response See response to General Comment #1 Section 6 8 2 has been added to the TM #1 to address the beryllium issue

Comment 12 Table 6-1, p 6-25 The footnoted information and corresponding text recommendations indicate that additional activity is going to take place at IHSSs 211 and 217 Therefore, the use of No Further Action for these IHSSs is misleading The recommendations presented for action should be detailed and a schedule presented for accomplishing those actions attached Specifically provide how the soil surrounding the 881 footing drain will be studied and the schedule for fume hood and lab table removal

Response The summary presentation for decisions regarding the need for further action have been substantially modified Additional clarification has been provided for areas which require further analysis The soil surrounding the 881 footing drain will no longer be evaluated due to changes in the proposed actions for IHSS 211 The table and fume hood in IHSS 217 will not be removed They are proposed for reuse in place

Comment 13 Section 7 0, p 7-1 It is proposed that "upon resolution and incorporation of all comments on Technical Memorandum Number 1, the revised document will be submitted as the Draft Phase I RFI/RI Report for Operable Unit 15 " Section 3 0 indicates that the results presented in the section contain invalidated data and the data will be incorporated into the Phase I RFI/RI Report after the data validation process In addition, the Interagency Agreement requires that the Draft Phase I RFI/RI Report must contain a Baseline Risk Assessment (BRA) Please indicate how the incorporation of the newly validated data will fit into the schedule, which indicates that a report will be ready by April 8, 1994, and whether a complete BRA will be performed after the completion of data validation

Response The previous proposal to complete the Draft Phase I RFI/RI report on April 8, 1994 was based on several agreements reached with CDH and EPA during the development of the Draft Technical Memorandum #1, which led to the conclusion that no further action would be required for any of the OU 15 IHSSs This would remove the need for additional efforts including the Baseline Risk Assessment However, based on the nature of comments received, this will no longer be possible The revised schedule for submittal of the Final Technical Memorandum #1 and the Draft Phase I RFI/RI report is given in Section 8

RESPONSE TO DOE MARCH 1, 1994 COMMENTS ON OPERABLE UNIT 15 DRAFT TECHNICAL MEMORANDUM NUMBER 1 ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES

Comment No	Comment Type*	Sect/Para No	Comment	Disposition
1	E	General	The document does not appear to have included any provisions for including preparation and acceptance or approval signatures This is also true with respect to the drawings Will this be included with the final version?	After the final TM#1 is accepted by DOE/CDH/EPA, the document could be issued as a controlled document at the discretion of EG&G If this is the case, approval signatures will need to be included No plans exist for taking the drawings through the EG&G Facilities Engineering approval system since they are simply figures used specifically to support the TM report
2	E	General	The draft document does not include the foundation documentation, sample forms, logs field notes, etc , that support the analysis, conclusions and/or recommendations included in the TM Will this field data be included?	Field data will be transmitted to EG&G in accordance with the EG&G data/records transmittal requirements The field forms, etc will not be included with the technical memorandum
3	E	General	The document has two sets of page numbers, one in the header for each section and the other in the footer This is confusing	The page numbers have been removed from the footer
4	E	General	There appear to be no page numbers associated with the tables	Page numbers have been left off of the tables and figures for TM#1 The figures and tables can be found at the end of each section Page numbers can be added to the tables and figures for the Draft Phase I RFI/RI report, if desired
5	S	TOC	Pages vi & vii - List of Acronyms appears to be incomplete, i e , RPT Capitalization for "RI" and "VOC"	The list of acronyms has been checked and new or missing acronyms added
6	S	TOC	Page viii - Additional material is referenced in the document, i e , DOE Orders, 10 and 29 CFR, SOPs, et al Will these documents be added to the List of References?	These documents will be included in the List of References for the Draft Phase I RFI/RI Report
7	E	2 2 3	Page 2-7, 2nd para - Beta and gamma dose rate surveys are identified as being performed at a distance of 30 cm or less How must less? Distance can skew you data appreciably and the range of distances should be specified	Some variation in survey distance is inherent to the survey process In general, the RPTs held the instrument approximately 30 cm from the surfaces being surveyed In some cases, the RPTs held the instrument closer to the surface, but this range is difficult to quantify The reference to the 30 cm distance or less has been deleted from the document, since the ROI/EMRG procedure is referenced

Comment No	Comment Type*	Sect/Para No	Comment	Disposition
8	S	2 5	Page 2-9, 2nd para - Small point but what happens when there are 4 numerical characters in the IHSS, i e , 117 1?	This case was not encountered during the OU15 project However, the LOCATION fields in RFEDS is 15 characters - therefore, a four or five character IHSS number could be accommodated
9	S	3 0	Page 3-1, 2nd para - The last sentence confuses me	The revised TM#1 was reviewed by a technical editor in an attempt to clarify confusing language
10	E	3 0	Page 3-2, 1st para - I found the write-up to be a bit confusing What I think that you are saying is that the sample activity was converted to a concentration per m^2 of surface area and then based upon 560 mg of dust per m^2 converted to a concentration of contamination of concern per unit of dust and that this concentration varies with the type of contaminate I recommend that you make these conversion calculations a bit more understandable	The conversion calculations have been listed in a clearer fashion with equations and sample calculations
11	E	3 1 1	Page 3-3, 1st para - CO_2 is identified as a VOC Is this a misprint, typo, etc	The sentence has been corrected
12	S	3 3 2	Page 3-8, 1st para , last sentence - Bad wording	The document has been updated based on a thorough technical edit
13	S	3 4 2	Small point but how will the requirement for full face respirators and Anti-Cs be viewed relative to a "No Further Action Justification"?	This information is provided in Section 2 0 as part of the visual inspections
14	S	3 4 3	Page 3-11, 1st sentence - Small point again but you may want to reiterate why the post rinsate samples were not obtained	A description of why post rinsate samples were not collected for IHSS 204 has been added
15	E	3 6 1	Page 3-14, 2nd para - Disagree with the write-up UBCs are associated with specific IHSSs Is the drain associated with OU-9, OPWL? If so, then there should be a specific UBC designator If the line goes into a Build 881 drain tank and no problem exists then there will be no UBC The specific UBC should be referenced	The reference to under building contamination has been deleted
16	E	Tables	As a general comment - The term "Test Group" is identified but not defined anywhere in the document, i e , "BNACLP "	The column headers and codes used in tables are explained in the Table of Contents
17	E	Tables	As a general comment - The term "Qualifier" is identified but no definition could be found in the document	A description of the column headers has been added to the Table of Content

Comment No	Comment Type*	Sect/Para No	Comment	Disposition
18	E	Tables	As a general comment - The headers are not properly lined up with the values	The tables have been reformatted in the revised TM#1
19	E	Tables	As a general comment - The "(1) - Calculated assuming 560 mg dust per square meter" footnote leaves a bit to the imagination as to where it comes from or how it is achieved See #10 above	The narrative (Section 6 1 1) has been revised to more clearly explain the calculation The equation has been added to the text, along with a sample calculation
20	E	Tables	As a general comment - The term "Error" is used but not defined or stipulated in some other manner Is this term "±"? Is it in % or some other units? Please define	A description of the column headers has been added to the Table of Contents
21	E	Tables	As a general comment - There are many instances where the "Post-Rinsate Smear Sample" values are higher than the "Pre-Rinsate Smear Sample" values This is confusing and no explanation for this is provided anywhere in the document Please explain somewhere	An initial analysis of the pre- and post-rinsate smear sampling was conducted using a Chi-squares test Based on this initial analysis, the increases in the alpha and beta smears for IHSS 179 and the alpha smears for IHSS 178 could not be attributed to random variability One reason for these increases could be the contaminant mobilization effects of the hot water rinsate sampling system The completed statistical evaluation of the pre- and post-rinsate smear data will be provided in the Draft Phase I RFI/RI Report
22	E	Tables	As a general comment - The "Detection Limit" is missing for some COCs Is this by intent or omission? Please explain	The data in the tables has been downloaded directly from RFEDS In some instances, data fields may be blank Missing detection limits indicate that either the record has not yet been validated and is incomplete, or that the compounds indicated were not "standard" (i e , were tentatively identified) and do not have specified detection limits for the method/instrument used
23	S	Tables	As a general comment - There are instances where the table is multi-paged and the "Building," "Room" and "IHSS" are not carried over to the additional pages This is also true for the footnotes on the initial pages of multi-paged tables A small point but it does make for easier reading	The tables have been modified as requested The footnotes appear only at the end of the tables
24	E	Tables	There are instances where table data is identified as being input manually ("*") Will this also be true for the final version of this document?	The final version of the document will generally contain validated data for the hot water rinsate results However, depending on the timing of submittal of the revised TM#1, some data (such as the equipment blanks) may not be validated and may be manually inserted for the final TM#1 submittal

Comment No	Comment Type*	Sect/Para No	Comment	Disposition
25	E	Tables	Table 3 4-3 for IHSS 204 does not have any data in the "Post-Rinsate " columns The reason(s) for this should be explained somewhere on the table or on the table page	An explanation has been added as requested
26	E	Tables	Tables 3 5-2 and 3 6-2 have data missing Is this by choice or by chance? If by choice please provide some form of explanation	The data presented in the tables has been directly downloaded from RFEDS In some cases, the RFEDS data had missing data prior to completion of validation
27	S	4 0	Page 4-2, 2nd para - As it is currently understood, the data presented in this document is complete but not completely validated	That is correct The revised TM#1 will reflect additional validated data although the validation process is still not complete
28	E	5 0	Page 5-1, last para - The document should state that the levels of exposure utilized apply to the general public or to occupational/radiation workers	The document has been modified as requested
29	S	5 0	Page 5-2, 1st para - As it is understood, the risk based approach cited is for occupational workers and utilizes the $1x10^{6}$ criteria for each COC but not the CDH approach of $1x10^{6}$ for all the COCs Is this understanding correct? If so then occupational workers should be identified If not the general public should be identified	The risk-based performance standards have been removed from the document
30	E	5 1	Page 5-2, 1st para , last sentence - NRC, DOE and AEC documents are identified but not specified What are the specific documents?	Specific references to regulations and guidance used for the OU15 TM#1 are given in Section 6 1 2
31	S	5 1	Page 5-3, 2nd para - Recommend that the last sentence be changed to read as follows "These standards "	The text has been changes to read " of the Work Plan and listed below "
32	E	5 1	Page 5-3, List of Standards Capitalization??? Is it 10CFR20, App B?	Change made as requested
33	E	5 1	Page 5-3, last para - The dose-rate standards listed are for Radiation Workers This should be specified	The text specified that the standards listed are for workers
34	E	5 1	Page 5-4, 1st para - As I understand it, minors are not allowed to receive any occupational exposure According to 10CFR20 the legal limit is expressed as 5N-18, where N is the age of the individual Please explain	The values listed for minors have been removed The document now uses only occupational values

Comment No	Comment Type*	Sect/Para No	Comment	Disposition
35	E	5 1	Page 5-4, 1st para - Are Radon and its daughter products COCs? There are massive amounts of concrete and trace amounts of uranium present, which should produce some Rn	The half life of Radon is very short (e g , Rn-222 has a half life of 3 82 days) These products occur down the decay chain of the constituents of concern for OU15 The levels of Radon produced during the decay of the parents, based on the low levels detected in the OU15 samples, would be small The half life of Ra-226 is 1600 years, indicating that it would be unlikely that Ra-226 would decay to produce enough Radon to be of concern The low level of Radon production from Ra-226 decay would be offset by the rapid decay of Radon
36	E	5 1	Page 5-6, No 2 - Th^{238} is a product of the U^{238} decay process and is also a β-emitter Does this element need to be considered	To account for the possible presence of Thorium (Th-234 or Th-231), the Thorium standards were compared to the standards for the isotopes detected at OU15 The Thorium standards are less stringent than the standards for the OU15 radioisotopes Therefore, the beta smear sample results were screened against the existing standards This procedure would be overly conservative if the beta were being generated by Thorium isotopes
37	S	5 1	Page 5-6, No 3 - The term "standard worker" is used and the term "occupational worker" is used other places and interchangeably with the term "radiation worker " All this differing terminology tends to confuse the average stakeholder	The terminology has been standardized to the term "standard worker"
38	E	5 2	Page 5-7, 1st para - What is the relationship of this section with 29CFR1910, 6CCR1007 and with DOE orders/guidance, etc ?	The use of risk-based screening levels has been eliminated from TM#1
39	E	Table 5-2	Page 5-14 - This table appears before Table 5-1 and therefore it appears to be out of place Additionally, it would be somewhat easier to understand if the parameters were defined and not just abbreviated	This table has been eliminated from the document as a result of the elimination of risk-based performance standards
40	S	6 3,1 1	Page 6-4, Step 1 - It might be more meaningful if this information was displayed in some manner to show that this is, in fact, the case	For the Draft Phase I RFI/RI report, the appropriate screening values can be added to the data tables, however, it is uncertain if this will aid the reader in making the comparison

Comment No	Comment Type*	Sect/Para No	Comment	Disposition
41	E	6 4 1 1	Page 6-7, 2nd para - Building 865 is currently one of the four buildings identified for the NCPP economic conversion effort You may want to include this in the statement pertinent to the beryllium contamination The other ED buildings are 444/447 and 883 IHSSs-178, -179 and -204 are the OU15 constituents involved	Section 6 8 2 has been added to address the beryllium issue The text now references ongoing building D&D and NCPP actions
42	E	6 6 1 2	Page 6-16, 1st sentence - Rather than "handling" the term "processing" may be more appropriate	The change has been made as requested
43	E	6 6 1 2	Page 6-16, last sentence - This statement may be inappropriate here Since this is a RCRA unit that has been out of operation for well over a year, some form of extraordinary effort will be required to recommence the operation of the unit It would appear that possibly some form of radiological and/or hazardous constituent screening will be needed This should be addressed in this TM	Best current information indicates that this unit will continue to be operated The unit will be proposed for RCRA closure based on the data presented in TM#1, and will therefore not be operated under RCRA regulations This type of reuse scenario will require substantially less effort that operating as a RCRA unit
44	S	6 6 1 3	Page 6-16 - This section may have to be rewritten to reflect the real world	Based on best current information, the document reflects a realistic future use scenario for IHSS 204
45	E	6 8 1 3	Page 6-23 - Unit 32 is a RCRA unit that also has been shutdown for a considerable period of time If the intentions are to use this unit for purposes that are currently not covered by the RCRA Permit possibly closure will be needed prior to operation	Reuse of the table and fume hood at IHSS 217 will be contingent upon the results of verification sampling and RCRA closure These activities have been proposed, and the results will be described in the Draft Phase I RFI/RI Report
46	E	Table 6-1	Page 6-25, Footnote 4 may have to be modified or removed	The footnote has been removed Verification sampling has been proposed for IHSS 217
47	S	7 0	The accelerated approach may need to be mentioned here The Ph I, Draft RFI/RI is due August 1, 1994 per the IAG	The schedule, now contained in Section 8, has been revised Submittal of the Draft Phase I RFI/RI Report is now scheduled for the IAG milestone date of 1 August 1994

*Comment Type E=Essential (agreement must be documented for other than verbatim incorporation), S=Suggested, Non-C=Nonconcurrence

United States Government

Department of Energy
Rocky Flats Office

memorandum

DATE APR 0 8 1994

REPLY TO ATTN OF ER.RJH 04131

SUBJECT Comments on Operable Unit 15 draft Technical Memorandum # 1

TO Dennis L Schubbe,
Environmental Restoration Management
EG&G Rocky Flats, Inc

The purpose of this correspondence is to formally forward to you the DOE Headquarters (DOE/HQ) and Rocky Flats Office/Environmental Restoration (RFO/ER) review comments concerning the "Draft Phase I, RCRA Facility Investigation/Remedial Investigation (RFI/RI), Technical Memorandum No 1" relative to Operable Unit 15 (Inside Building Closures)

Preliminary copies of both the DOE/HQ and RFO/ER review comments have been provided to you earlier

If you have any additional questions or wish additional information, please contact me at telephone (303) 966-4013 or Richard Hyland at (303) at (303) 966-2136

William N Fitch
Program Manager
Decontamination and Decommissioning

Attachments

cc
F Lockhart, ER, RFO
M McBride, ER, RFO
J Roberson, AMER, RFO
V Witherill, ER, RFO
W Busby, EG&G
A Primrose, EG&G
S Stiger, EG&G

United States Government Department of Energy

memorandum

DATE MAR 14 1994

REPLY TO ATTN OF EM-453 (J. Ciocco, 903-7459)

SUBJECT. Comments for Rocky Flats Draft Phase I Remedial Field Investigation/Remedial Investigation Technical Memorandum Number 1, Inside Building Closures (Operable Unit 15), February 1994

TO B. Fitch, Rocky Flats Office

The Office of Southwestern Area Programs, Rocky Flats (RF) Branch, has reviewed the "Draft Phase I Remedial Field Investigation (RFI)/Remedial Investigation (RI) Technical Memorandum Number 1, RF Plant, Inside Building Closures (Operable Unit 15)" February 1994, document. Please address the attached comments during the document finalization process.

Our main concern with the document is as follows:

Section 7 indicates that upon receipt of comments this document will be modified and the title changed to "Draft Phase I RFI/RI." The document is not presently formatted as required in the Interagency Agreement. Specifically, the document does not contain a Preliminary Site Characterization, Baseline Risk Assessment, or Environmental Evaluation. If Rocky Flats Plant has been provided direction from the regulators that this information is unnecessary for this report, then the document introduction should include the appropriate references.

Please contact me at 301-903-8191 or Jeff Ciocco at 301-903-7459 if you have any questions regarding these comments.

for Jeff Ciocco
Aztar Rampertaap
Chief
Rocky Flats Branch
Rocky Flats/Albuquerque Production Division
Office of Southwestern Area Programs
Environmental Restoration

Attachment

cc w/Attachment:
R. Schassburger, RF
S. Grace, RF

cc w/o Attachment.
C. Gesalman, EM-453

4741041

DOCUMENT REVIEW: DRAFT PHASE I Remedial Field Investigation/Remedial Investigation TECHNICAL MEMORANDUM NUMBER 1, ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES
(OPERABLE UNIT 15)
PUBLISHED: FEBRUARY 1994

GENERAL COMMENTS

1. The source of beryllium contamination and how this contamination is to be addressed should be further explained. Although beryllium is detected at several Individual Hazardous Substance Sites (IHSSs), the document concludes that such beryllium (see Specific Comment 11) will not affect pursuing clean closure and should be addressed as a general building concern. Please elaborate as to how the beryllium contamination will be addressed and how the data collected during this action will be incorporated into further investigations. Clean closure of the IHSSs may be inappropriate before the beryllium contamination issue is resolved

2. The report presents two instances, Specific Comments 7 and 10, where detection levels were higher than the screening levels. The report should discuss whether these detections were the result of the screening level being reduced after the surveys or if proposed detection limits were not achieved during this investigation.

3. The engineering drawings in Figures 2-2 to 2-20 are presented without a scale. Please provide the scale for each drawing.

SPECIFIC COMMENTS

1. Section 1.4, page (p.) 1-5, last paragraph, first sentence: The sentence states that Section 2.0 of this document summarizes the Field Sampling Plan. However, the section summarizes only the quantity and location of the samples collected during the Phase I Resource Conservation and Recovery Act Facility Investigation (RFI)/Remedial Investigation (RI) process and the rationale for the sampling is essentially explained in Section 3. The text would be much clearer if Section 2 is merged into Section 3.

2. Section 2.4, p. 2-8, second paragraph: Please provide a summary table showing the results of the quality control sampling. The listing in Section 3 does not provide a specific break out providing these sample results..

3. Section 2.5, p 2-10, first paragraph: Please clarify the system limitations that did not allow for input of sample locations. If the system was unable to track sample locations, then please explain how this information will not be "lost" over time.

4. Section 3.0, p. 3-1, second paragraph: If possible the data presented in the tables should be identified as validated or invalidated. If this report is going to be used for making the decision not to conduct planned field work, then representation of invalidated data is necessary to adequately evaluate the decision for No Further Action at these IHSSs

5. Section 4.0, p. 4-1, first paragraph: Please clarify the purpose of the screening process that is used. It appears that the screen is to both include and exclude contaminants of concern, but the process is not well described.

6 Section 4.0, p. 4-1, second paragraph: Please clarify the last sentence in this paragraph. Specifically identify what constitutes "chemical quality assurance reasons."

7. Section 4.0, p. 4-2, last paragraph: The text indicates that the fixed alpha and beta-radiation survey will not be evaluated further because of the high detection limit and the variability of the results. This decision raises the question concerning the original goals and data quality objectives of the fixed alpha-and beta-radiation survey. Please clarify.

8. Section 5.1, p. 5-6, last paragraph. This paragraph indicates that a more conservative dust-loading value (Hawley, 1985) is used instead of the Nuclear Regulatory Commission (NRC) approach. Please explain why a more conservative dust load value is used, (i.e., does the NRC approach cause unacceptable uncertainty or risk).

9. Section 6.2, p. 6-3, second paragraph: The chemical constituent bis(2-ethylhexyl)phthalate (DEHP) detected is interpreted to be the result of the use of plastic components in the hot water rinsate. If the interpretation has not been tested by sampling the water in contact with plastic component, then DEHP should not be eliminated as a chemical of concern. If this has been done, then the results of the study should be referenced in the text.

10. Section 6.4.1.1, p. 6-7, third paragraph, second sentence: The sentence states that the method detection limit for beryllium is substantially above the screening level. As shown in Table 5-3, the noncarcinogenic screening level is 9660 mg/kg and carcinogenic screening level is 1.24 mg/kg. It is unclear why the method detection limit is substantially above these levels. Please indicate the method detection limit. In addition, if the method detection limit is substantially higher, the function of the conservative screening level is unclear. Please clarify

11 Section 6.4.1.1, p. 6-7, third paragraph: The text states that the beryllium may be associated with other operations in Building 865 and is not associated specifically to IHSS 179; therefore, "further action on beryllium contamination should not be required to clean close IHSS 179."

The same conclusions are also drawn for other IHSSs discussed in this technical memorandum Regardless of the source of the contamination, it is not clear how clean closure could be reached if the IHSSs have been contaminated. Please clarify.

12. Table 6-1, p. 6-25: The footnoted information and corresponding text recommendations indicate that additional activity is going to take place at IHSSs 211 and 217. Therefore, the use of No Further Action for these IHSSs is misleading. The recommendations presented for action should be detailed and a schedule presented for accomplishing those actions attached. Specifically provide how the soil surrounding the 881 footing drain will be studied and the schedule for fume hood and lab table removal.

13. Section 7.0, p. 7-1 It is proposed that "upon resolution and incorporation of all comments on Technical Memorandum Number 1, the revised document will be submitted as the Draft Phase I RFI/RI Report for Operable Unit 15." Section 3.0 indicates that the results presented in the section contain invalidated data and the data will be incorporated into the Phase I RFI/RI Report after the data validation process. In addition, the Interagency Agreement requires that the Draft Phase I RFI/RI Report must contain a Baseline Risk Assessment (BRA). Please indicate how the incorporation of the newly validated data will fit into the schedule, which indicates that a report will be ready by April 8, 1994, and whether a complete BRA will be performed after the completion of data validation.

AMER
Form 91-01
Rev 2, 05/13/92

AMER REVIEW OF TECHNICAL DOCUMENTS

REVIEW COMMENT RECORD

Document Reviewed (Title, Number, Revision, Date, etc)	Reviewer: R Hyland	Agreement with Dispositions
Draft TM-1 for OU-15, Phase I RFI/RI RFP/ER-OU-15 01-TM 01-93 February, 1994	Signature Date March 1, 1994 Phone x2136 Organization: DOE-ER/RFO	Date Reviewer Document Preparer.

*Comment Type E = Essential (agreement must be documented for other than verbatim incorporation), S = Suggested, Non-C = Nonconcurrence

Comment No	Comment Type*	Sect /Para No	Comment	Disposition
1	E	General	The document does not appear to have included any provisions for including preparation and acceptance or approval signatures. This is also true with respect to the drawings Will this be included with the final version?	
2	E	General	The draft document does not include the foundation documentation, sample forms, logs field notes, etc , that support the analysis, conclusions and/or recommendations included in the TM Will this field data be included?	
3	E	General	The document has two sets of page numbers, one in the header for each section and the other in the footer. This is confusing.	
4	E	General	There appear to be no page numbers associated with the tables	
5	S	TOC	Pages vi & vii - List of Acronyms appears to be incomplete, i e , RPT Capitalization for "RI" and "VOC".	
6	S	TOC	Page viii - Additional material is referenced in the document, i e., DOE Orders, 10 and 29CFR, SOPs, et al Will these documents be added to the List of References?	
7	E	2 2.3	Page 2-7, 2nd para - Beta and gamma dose rate surveys are identified as being performed at a distance of 30 cm. or less How much less? Distance can skew your data appreciably and the range of distances should be specified	
8	S	2.5	Page 2-9, 2nd para - Small point but what happens when there are 4 numerical characters in the IHSS, i e , 117 1?	
9	S	3 0	Page 3-1, 2nd para. - The last sentence confuses me.	

AMER REVIEW OF TECHNICAL DOCUMENTS

REVIEW COMMENT RECORD CONTINUATION SHEET

Document Reviewed (Title, Number, Revision, Date, etc)	Reviewer: R Hyland	Agreement with Dispositions
Draft TM-1 for OU-15, Phase I RFI/RI RFP/ER-OU-15 01-TM 01-93 February, 1994	Date March 1, 1994 Phone x2136 Organization DOE-ER/RFO	Date Reviewer Document Preparer

Comment No	Comment Type*	Sect /Para No	Comment	Disposition
10	E	3 0	Page 3-2, 1st para - I found the write-up to be a bit confusing What I think that you are saying is that the sample activity was converted to a concentration per m^2 of surface area and then based upon 560 mg of dust per m^2 converted to a concentration of contaminate of concern per unit of dust and that this concentration varies with the type of contaminate I recommend that you make these conversion calculations a bit more understandable	
11	E	3 1 1	Page 3-3, 1st para - CO_2 is identified as a VOC Is this a misprint, typo, etc	
12	S	3 3 2	Page 3-8, 1st para , last sentence - Bad wording	
13	S	3.4 2	Small point but how will the requirement for full face respirators and Anti-Cs be viewed relative to a "No Further Action Justification"?	
14	S	3 4 3	Page 3-11, 1st sentence - Small point again but you may want to reiterate why the post rinsate samples were not obtained	
15	E	3 6 1	Page 3-14, 2nd para - Disagree with the write-up UBCs are associated with specific IHSSs Is the drain associated with OU-9, OPWL? If so, then there should be a specific UBC designator If the line goes into a Build 881 drain tank and no problem exists then there will be no UBC The specific UBC should be referenced	
16	E	Tables	As a general comment - The term "Test Group" is identified but not defined anywhere in the document, i e , "BNACLP."	
17	E	Tables	As a general comment - The term "Qualifier" is identified but no definition could be found in the document	

AMER REVIEW OF TECHNICAL DOCUMENTS

REVIEW COMMENT RECORD CONTINUATION SHEET

Document Reviewed (Title, Number, Revision, Date, etc)	Reviewer R. Hyland	Agreement with Dispositions
Draft TM-1 for OU-15, Phase I RFI/RI RFP/ER-OU-15.01-TM 01-93 February, 1994	Date March 1, 1994 Phone x2136 Organization DOE-ER/RFO	Date Reviewer Document Preparer.

Comment No	Comment Type*	Sect /Para No	Comment	
18	E	Tables	As a general comment - The headers are not properly lined up with the values	
19	E	Tables	As a general comment - The "(1) - Calculated assuming 560 mg dust per square meter" footnote leaves a bit to the imagination as to where it comes from or how it is achieved See #10 above	
20	E	Tables	As a general comment - The term "Error" is used but not defined or stipulated in some other manner Is this term "±"? Is it in % or some other units? Please define	
21	E	Tables	As a general comment - There are many instances where the "Post-Rinsate Smear Sample" values are higher than the "Pre-Rinsate Smear Sample" values. This is confusing and no explanation for this is provided anywhere in the document Please explain somewhere	
22	L	Tables	As a general comment - The "Detection Limit" is missing for some COCs Is this by intent or omission? Please explain	
23	S	Tables	As a general comment - There are instances where the table is multi-paged and the "Building," "Room" and "IHSS" are not carried over to the additional pages. This is also true for the footnotes on the initial pages of multi-paged tables A small point but it does make for easier reading	
24	E	Tables	There are instances where table data is identified as being input manually ("*") Will this also be true for the final version of this document?	

AMER REVIEW OF TECHNICAL DOCUMENTS

REVIEW COMMENT RECORD CONTINUATION SHEET

Document Reviewed (Title, Number, Revision, Date, etc)	Reviewer R Hyland	Agreement with Dispositions
Draft TM-1 for OU-15, Phase I RFI/RI RFP/ER-OU-15 01-TM 01-93 February, 1994	Date. March 1, 1994 Phone x2136 Organization DOE-ER/RFO	Date Reviewer Document Preparer

Comment No	Comment Type*	Sect /Para No	Comment	
25	E	Tables	Table 3 4-3 for HSS 204 does not have any data in the "Post-Rinsate " columns The reason(s) for this should be explained somewhere on the table or on the table page.	
26	E	Tables	Tables 3 5-2 and 3 6-2 have data missing Is this by choice or by chance? If by choice please provide some form of explanation	
27	S	4 0	Page 4-2, 2nd para - As it is currently understood, the data presented in this document is complete but not completely validated	
28	E	5 0	Page 5-1, last para. - The document should state that the levels of exposure utilized apply to the general public or to occupational/radiation workers	
29	S	5 0	Page 5-2, 1st para - As it is understood, the risk based approach cited is for occupational workers and utilizes the $1x10^{-6}$ criteria for each COC but not the CDH approach of $1x10^{-6}$ for all the COCs Is this understanding correct? If so then occupational workers should be identified If not the general public should be identified	
30	E	5.1	Page 5-2, 1st para , last sentence - NRC, DOE and AEC documents are identified but not specified What are the specific documents?	
31	S	5 1	Page 5-3, 2nd para - Recommend that the last sentence be changed to read as follows "These standards . "	
32	E	5 1	Page 5-3, List of Standards Capitalization??? Is it 10CFR20, App B?	

AMER REVIEW OF TECHNICAL DOCUMENTS

REVIEW COMMENT RECORD CONTINUATION SHEET

Document Reviewed (Title, Number, Revision, Date, etc)	Reviewer R. Hyland	Agreement with Dispositions
Draft TM-1 for OU-15, Phase I RFI/RI RFP/ER-OU-15 01-TM.01-93 February, 1994	Date March 1, 1994 Phone. x2136 Organization DOE-ER/RFO	Date Reviewer Document Preparer

Comment No	Comment Type*	Sect./Para No.	Comment	
33	E	5 1	Page 5-3, last para - The dose-rate standards listed are for Radiation Workers This should be specified	
34	E	5 1	Page 5-4, 1st para - As I understand it, minors are not allowed to receive any occupational exposure According to 10CFR20 the legal limit is expressed as 5N-18, where N is the age of the individual. Please explain	
35	E	5.1	Page 5-4, 1st para - Are Radon and its daughter products COCs? There are massive amounts of concrete and trace amounts of uranium present, which should produce some Rn.	
36	E	5 1	Page 5-6, No 2 - Th^{234} is a product of the U^{238} decay process and is also a ß-emitter. Does this element need to be considered	
37	S	5.1	Page 5-6, No 3 - The term "standard worker" is used and the term "occupational worker" is used other places and interchangeably with the term "radiation worker " All this differing terminology tends to confuse the average stakeholder	
38	E	5.2	Page 5-7, 1st para. - What is the relationship of this section with 29CFR1910, 6CCR1007 and with DOE orders/guidance, etc ?	
39	E	Table 5-2	Page 5-14 - This table appears before Table 5-1 and therefore it appears to be out of place Additionally, it would be somewhat easier to understand if the parameters were defined and just not abbreviated	
40	S	6.3.1 1	Page 6-4, Step 1 - It might be more meaningful if this information was displayed in some manner to show that this is, in fact, the case	

AMER REVIEW OF TECHNICAL DOCUMENTS

REVIEW COMMENT RECORD CONTINUATION SHEET

Document Reviewed (Title, Number, Revision, Date, etc)	Reviewer R Hyland	Agreement with Dispositions
Draft TM-1 for OU-15, Phase I RFI/RI RFP/ER-OU-15.01-TM 01-93 February, 1994	Date March 1, 1994 Phone x2136 Organization DOE-ER/RFO	Date Reviewer Document Preparer

Comment No	Comment Type*	Sect./Para No	Comment	
41	E	6.4.1 1	Page 6-7, 2nd para - Building 865 is currently one of the four buildings identified for the NCPP economic conversion effort You may want to include this in the statement pertinent to the beryllium contamination The other ED buildings are 444/447 and 883 IHSSs -178, -179 and -204 are the OU-15 constituents involved.	
42	E	6 6 1 2	Page 6-16, 1st sentence - Rather than "handling" the term "processing" may be more appropriate	
43	E	6 6 1.2	Page 6-16, last sentence - This statement may be inappropriate here. Since this is a RCRA unit that has been out of operation for well over a year, some form of extraordinary effort will be required to recommence the operation of the unit It would appear that possibly some form of radiological and/or hazardous constituent screening will be needed This should be addressed in this TM	
44	S	6 6.1 3	Page 6-16 - This section may have to be rewritten to reflect the real world	
45	E	6 8 1 3	Page 6-23 - Unit 32 is a RCRA unit that also has been shutdown for a considerable period of time. If the intentions are to use this unit for purposes that are currently not covered by the RCRA Permit possibly closure will be needed prior to operation.	
46	E	Table 6-1	Page 6-25, Footnote 4 may have to be modified or removed	
47	S	7 0	The accelerated approach may need to be mentioned here The Ph I, Draft RFI/RI is due August 1, 1994 per the IAG.	

EG&G Comments

RESPONSE TO EG&G COMMENTS ON OPERABLE UNIT 15 DRAFT TECHNICAL MEMORANDUM NUMBER 1 ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES

General {G} comments require resolution but do not require resolution acceptance Mandatory {M} comments require resolution and resolution acceptance

Item G or M	Page	Section Or Step	Comment	Resolution
M	7 of 10	2 2 3	Surveys are conducted IAW ROIs 1 1 Radiation Surveys, 1 2 Beta Radiation Surveys and 3 1 Performance Surveys	A reference to the ROIs has been added
G	7 of 10	2 2 3	Say that Ludlum 12-1A (or equivalent) was used Same for Ludlum 31	The requested information has been added to the document
G	2-2	2 1 4th para	This paragraph describes "Smear Sampling for radiological followed by " and "Finally, removable alpha This is confusing - do you intend to smear sample first followed by rinsate sampling followed by smear sampling again?	Yes, there were smear samples taken both before and after the hot water rinsate sampling This has been clarified in the text
G	2-7	2 2 3	Same point as above	See response above
G	2-7	2 2 3 2nd para	This is a repeat of Section 2 2 1	The smear sample analysis method is repeated from Section 2 2 1, however, this paragraph also contains the methods used for the beta and gamma dose-rate surveys
G	2-7	2 2 3 1st para	Removable does not equal direct count measuring	The removable radiation was measured from smear samples, as described in the second paragraph The direct measurements relate to fixed radiation This has been clarified in the text
G	3-14	3 6 1 3rd para	What project/process undertakes the "under building contamination investigation"?	The reference to Under Building Contamination (UBC) has been removed
G			Overall, the report is well written The following comments deal with grammar, clarity, and content	No response required
M	Throughout report text and tables		"Hit" is slang for a "detected concentration," and should not be used in a report	The term "hit" has been eliminated from the report
M	Throughout report text and tables, pg V		"Rad" is slang for "radionuclide", and should not be used in a report	The term "rad" has been eliminated from the text and tables The term "rad" is still used in the figures, but is defined in the drawing legend

Item G or M	Page	Section Or Step	Comment	Resolution
M	Throughout text and tables		"Chemical" is not a synonym for "organic compound " Water (H_2O) is a chemical, radionuclides are chemicals, etc Please rewrite to clarify explicitly what is meant, instead of using "chemical" as a layperson might	The term "chemical" has been changed to refer specifically to organic compounds and radionuclides
M	p1-1 and throughout text-pages flagged		Confusion over use of "which" and "that" As a relative pronoun, "that" is used only to introduce restrictive clauses, whereas "which" is used to introduce nonrestrictive clauses	The use of "which" and "that" has been reviewed and improper usage has been corrected where appropriate
M	Flagged in text		Incorrect use of "comprise" as a synonym for "compose" Parts comprise the whole, but the whole is composed of parts	The text has been corrected as suggested
G	Flagged in text		Inconsistent use of commas in lists (x, y, and z vs x, y and z)	The use of commas in lists has been corrected to consistently use the format x, y, and z
M			"Data" is the plural of "datum", therefore data are or data were	Improper grammatical usage referring to "data" has been corrected
G	Flagged in text		Incorrect usage of "since" as a synonym for "because", and "while" as a synonym for "whereas" This is a common mistake, but still merits correction "Since" and "while" refer to time (e g "since 1955 ") "while" implies the simultaneous occurrence of events, "whereas" should be used if no temporal association is intended	Improper usage has been corrected
G	Throughout text		"OU 15" will read better if hyphenated, or written as one word (OU-15 or OU15)	"OU 15" has been changed to "OU15" throughout the text

Item G or M	Page	Section Or Step	Comment	Resolution
M	Throughout text		Readability and clarity of meaning are impaired by unhyphenated strings of modifiers To avoid unintended misreading, please consider the following recommended hyphenations (Can be done by global "search and replace") Cyanide Bench-Scale Treatment Original Uranium-Chip Roaster hot-water rinsate samples compressed-gas cylinder dust-loading value direct-release mechanism Caution do not hyphenate unless both terms are used as modifiers (e g "compressed gas", where "gas" is the noun, should NOT be hyphenated, etc)	Modifier strings have been edited and/or eliminated where possible Hyphenation has been added where grammatically appropriate
M	Fig 2-16, 2-17, 2-18, 2-19		Please rewrite as "Table and Fume Hood in the Cyanide Bench-Scale Laboratory"	The Figures were not modified This term is consistent with how the unit is referenced in the Work Plan
M	P 3-2, 3-4, 3-6, 3-8, 3-11, 3-13	3 1, 3 2, 3 3, 3 4, 3 5, 3 6	This sentence has a string of eight modifiers for the noun "results " Please rewrite, using suggested hyphenation and rearrangement	Strings of modifiers have been removed or edited wherever possible
M	Tables 3 1-1 through Table 3 6-4 (about 30 pages)		"Chemical" incorrectly used as a synonym for "organic", strings of modifiers, use of slang ("hit") Address all flagged pages Red flags are more critical than green flags, but please look at comments in the draft report	The text has been modified for grammatical correctness and proper word choice Slang terms have been changed
G	2-10	2 5	first sentence It seems the original data sheets have been transcribed into this document The originals should be maintained as part of the QA record for this project	The original data sheets will be transmitted to EG&G in accordance with the appropriate Environmental Restoration requirements
G	3-8	3 3 2	first paragraph, last sentence editorial - change " was in scuffed " to " was scuffed "	The text has been changed as requested
G	7-13	7 3 15	This section of the work plan discusses plotting the survey results on an IHSS sketch This would be a good visual aid if formatted for inclusion in either this TM or the RFI/RI report	Where appropriate, these maps will be developed for inclusion in the Draft Phase I RFI/RI report

Item G or M	Page	Section Or Step	Comment	Resolution
M	7-14	7 3 2 1	This section of the work plan calls for 40 smear samples but the TM (page 2-2) only documents the collection of 30 samples This discrepancy should be explained in the TM as it is a DQO/PARCC issue	The location and number of smear samples identified in the Work Plan were developed based on drawings which had not been field verified As part of the OU15 Stage I and II field investigations the dimensions of each IHSS/area were measured and plotted on updated drawings The sampling grids were then laid out based on these field-measured actual dimensions This resulted in a change to the number and locations of samples specified in the work plan for each IHSS The field team attempted to match the actual sampling grid as closely as possible to the grids proposed in the Work Plan
M	7-15, 16	7 3 2 2	The work plan states that 32 locations will be smear sampled Section 2 1 2, page 2-2 of the TM indicates only 23 samples were collected This discrepancy should be explained in the TM as it is a DQO/PARCC issue	See response above
M	7-17	7 3 2 3	The work plan states that 55 locations will be smear samples Section 2 1 3, page 2-3 of the TM indicates only 49 samples were collected This discrepancy should be explained in the TM as it is a DQO/PARCC issue	See response above
M	7-19	7 3 2 4	The work plan states that 41 locations will be smear samples in Rooms 501/502 Section 2 1 4, page 2-3 of the TM indicates only 31 locations were collected Is the explanation that 10 additional smears were collected in the wash/drum room which was not specifically outlined in the workplan?	See response above
G	7-20	7 3 2 5	last paragraph The work plan states that two rinsates were planned for Stage 1 and an extra would be taken if IHSS associated contamination was found outside of the IHSS boundary The TM, Section 2 1 5, page 2-4 says three rinsates were collected Is the correct assumption that contamination was found outside the boundary or is there another explanation that could be added to the TM text	As a result of logistical considerations, Stage I and II field work was combined The fact that the Stage II rinsate samples were collected does not necessarily imply that contamination was present in the Stage I samples
G	3-2	3 0	first paragraph, second sentence A data conversion is discussed but the equation/specifics are not provided or referenced Additional text or a reference would be informative to validate the results	Specific equations and example calculations have been added to the text

Item G or M	Page	Section Or Step	Comment	Resolution
M	tables	3 6 3	A legend for the chemical result qualifiers is needed	Lists explaining the codes used have been included in Section 4 0 and the Table of Contents
M	tables	3 6 3	The QA/QC sample results are not presented They should be included Will all the sample analytical results (hits/non-hits) be provided in the RFI/RI report?	A new section (Section 4 0) has been added discussing all of the QA/QC results
G	tables	3 6 3	The tables for the smear sample results and beta/gamma dose-rate survey data do not indicate the date on which the surveys were performed	The dates of the survey will be added to the tables in the Phase I RFI/RI report
M	tables	3 6 3	The tables for the "Hot Water Rinsate Radionuclide Results" have a column heading of "Error" No explanation of what this "error" is was found in the text Is it instrument error, calculation error, analytical error ?	An explanation of the "Error" column has been added to the Table of Contents
G	Tables 3 1-3, 3 3-3	3 6 3	An explanation of the increase in the alpha/beta activity for pre- versus post-rinsate samples would be informative	An initial analysis of the pre- and post-rinsate smear samples was conducted using a Chi Squared test Based on this initial analysis, the increases in the alpha and beta smears for IHSS 179 and the alpha smears for IHSS 178 could not be attributed to random variability One reason for these increases could be the contaminant mobilization effects of the hot water rinsate sampling system The completed statistical evaluation of the pre- and post-rinsate smear data will be provided in the Draft Phase I RFI/RI Report
G M	Table 3 2-1	3 6 3	1) Reformat the columns so the detection limits are centered under their heading 2) No detection limits were reported for 1,3-Isobenzofurandione, 4,4-Isopropylidenediphenol, or 2-ethyl-1-hexanol	1) The tables have been modified as requested 2) No detection limits were reported for these compounds in RFEDS
M	Tables 3 2-2, 3 3-2, 3 5-1 3 6-1	3 6 3	A variation exists in the number of significant figures between the reported results and the corresponding detection limits The same number of sig figs should be used	The results and detection limits have been downloaded directly from RFEDS

Item G or M	Page	Section Or Step	Comment	Resolution
G M	Table 3 2-5	3 6 3	1) Some of the sampling locations exhibit an increase in the pre- vs post-rinsate smear An explanation/hypothesis might be informative 2) No reported value is present for Area 23 - pre-rinsate smear sample	1) This analysis has been added to the text in Section 6 0 2) The RPT inadvertently did not count the smear sample from this location
G M	Table 3 3-1	3 6 3	1) Reformat the columns so the detection limits are centered under their heading 2) No detection limits are reported for 1,3-Isobenzofurandione and 4,4-Isopropylidenediphenol	1) The tables have been modified as requested 2) No detection limits were reported for these compounds in RFEDS
M	Table 3 4-1	3 6 3	Detection limits for certain chemicals are missing from the table	No detection limits were reported for these compounds in RFEDS
M	Table 3 4-2	3 6 3	1) No detection limits are listed for Samples BU00047ER and BU00050ER 2) An explanation of why a variability exists between detection limits between different samples for the same analyte would be informative	1) Samples BU00047ER and BU00050ER were entered manually in the draft TM #1, and therefore detection limits were not available These samples have now been entered into RFEDS and the revised TM #1 will contain detection limits for these compounds 2) After a careful search of the database, it was confirmed that detection limits did not vary between samples for organic and inorganic (non-radionuclide) analyses The detection limits for radionuclides vary between samples because of the variability in the instruments used to analyze different samples
M	Table 3 5-2	3 6 3	Results and detection limits were not reported for Gross Alpha and Gross Beta	These results had not been validated in RFEDS at the time of submittal of the Draft TM #1 These omissions have been corrected in the revised TM #1
G	5-6	3	Providing the calculation/conversion in the text might be informative to the reader	The calculation [(1 25/500) x 1000] did not appear necessary to clarify the point
G	5-8	5 2 1	Since future land use has been such a controversial topic at RFP, a reference to this accepted scenario might diminish rebuttal in the future	This land use scenario has not previously been generally accepted or approved The type of future land use scenario appropriate to an analysis is dependent on the regulatory scope and objectives of the analysis, and varies for different areas at RFP It is planned that regulatory approval of TM #1 will establish that the selected future land use scenario is appropriate for the closure of IHSSs at OU-15

Item G or M	Page	Section Or Step	Comment	Resolution
G	6-3	6 2	An evaluation of the trip blank analyses might provide more supporting evidence for the rationale in this section	Section 4 0 provides an analysis of all QA/QC sample results, including additional equipment blanks analyzed since the Draft TM #1 submittal
G	6-8	4	A reference to Table 3 2-3 would be helpful to the reader to confirm the information	Due to revisions in the document this text has been eliminated
M	6-3	6 2	first sentence The words "almost every" should be quantified This will be consistent with other words used throughout this section which connote absoluteness "none", "all", "every"	See response above
M	6-8	6 4 1 2	Step 2, second sentence The words "almost all" should be quantified	See response above
M	6-11	6 5 11	second paragraph first sentence-The word "many" should be quantified third sentence-What is the significance of the "patterns of detection" and "relative magnitude" that leads to the conclusion that the Be may be associated with other operations?	Additional discussion has been added in Section 6 8 2 quantifying the pattern of Be detections
M	6-12	6 5 1 2	Step 2, second sentence The word "several" should be quantified Step 4, first sentence The word "some" should be quantified	Specific quantities have been added as requested
M	6-24	6 8 2 2	first sentence The word "several" should be quantified	Specific quantities have been added as requested
M			DQOs are not adequate addressed - PRECISION 1)what were the ACTUAL percentages of duplicates analyzed, with respect to EACH MATRIX TYPE, and EACH ANALYTICAL SUITE? We don't know whether the planned DQO of 5% was achieved or not, only that it was planned 2)actual percentages of samples within and exceeding the RPD tolerances (per MATRIX TYPE and per ANALYTICAL SUITE) should be given as part of the summary, not vague generalities such as "significant variability", "very few", "small percentages", etc	Section 4 0 has been added which addresses DQOs and PARCC results

Item G or M	Page	Section Or Step	Comment	Resolution
M			DQOs are not adequately addressed -- ACCURACY did we meet the DQOs for accuracy? at the very least, a summary of the analytical methods actually used (per matrix and per analytical suite) should be compared with the detection limits required, to corroborate that the planned accuracies were obtained, a table would serve this purpose well, accuracy requirements are project specific	Section 4 0 has been added which addresses DQOs and PARCC results
M			DQOs are not adequately addressed -- REPRESENTATIVENESS representativeness is based on primarily on quality of the Work Plan, and subsequent adherence to the Work Plan -- this is why deviations from the Work Plan need to be communicated and evaluated in the report, especially with respect to representativeness of the data (w/respect to the 3-dimensional body of material known as the Operable Unit, or as individual IHSS's), provide better qualification of representativeness	Section 4 0 has been added which addresses DQOs and PARCC results
M			DQOs are not adequately addressed -- COMPLETENESS whereas percentages of hits per # of samples seem to be an important function in determining COCs, whether these data subsets are COMPLETE is totally ignored, based on the absence of any completeness data in the report, the QAPjP and EPA guidelines provide equations for completeness -- use them to quantify completeness and draw subsequent conclusions on data usability	Section 4 0 has been added which addresses DQOs and PARCC results
M			DQOs are not adequately addressed -- COMPARABILITY this is primarily with respect the types of analytical methods used, and their respective detection limits (i e , do they compare), and to a lesser degree, consistency in sampling methods	Section 4 0 has been added which addresses DQOs and PARCC results

RESPONSE TO EG&G MARCH 8, 1994 COMMENTS ON OPERABLE UNIT 15 DRAFT TECHNICAL MEMORANDUM NUMBER 1 ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES

Comment 1 **[Section 2.0, Figure 2-1]** The explanation in the drawing legend that an IHSS location is shown by the hatched area representing the location painted on the floor is confusing The actual area sampled for each IHSS is considerably more extensive than the hatched area in the drawing The TM goes on to evaluate all IHSS data, not just the data for the hatched areas Recommended a clarification

Response TM#1 has been extensively revised to clarify the difference between "inside the IHSS" and "outside the IHSS" The IHSS areas themselves are much smaller than the investigation areas, and consist only of the areas identified as "RCRA Units" The work plan described Phase I sampling which evaluated contamination within the IHSS, Phase II sampling which identified contamination around the perimeter of the IHSS, and Phase III sampling which would be used to identify contamination along pathways from the IHSS to the outside of the buildings Figures and narrative descriptions have been added clarifying the actual IHSS areas These are contained in Section 2 0 of the revised TM#1

Comment 2 **[p. 3-1, Section 3.0, para. 2]** What are the implications of mixing both validated and invalidated data for the hot-water rinsate sample results? What proportion of the data is unvalidated? Should the dose-based or risk-based screening of sample results be identified as preliminary and revisited when the Phase I RFI/RI Report is produced? Recommended inserting appropriate qualifications

Response The majority of data in the final TM#1 will be validated Based on timing, data from some samples, including the equipment blanks, will still be going through the validation process at the time of submittal of the final TM#1 Risfj\k-based screening levels have been eliminated from the report

Comment 3 **[p. 5-1, Section 5.0, para. 2]** Deliberately overestimating a risk level using worst-case exposure assumptions instead of RME (Reasonable Maximum Exposure) is not standard practice, even for a screening-level risk analysis Worst-case assumptions can result in forcing a full risk assessment for a contaminant that does not necessarily exceed the RME risk-based concentration, as may be the case with beryllium, for example, at two IHSSs within OU-15 (see further comments) Recommend reconsidering this approach

Response Risk-based screening levels have been eliminated from the report

Comment 4 **[p. 5-2, Section 5.1, last para.]** Dose conversions made using the Hanford GENII computer code are not standard practice, model assumptions characteristic of Hanford may not apply to the RFP A more cost-effective method is to apply the exposure-to-dose conversion factors for ingestion and inhalation of soil or dust that are provided in EPA Federal Guidance Report No 11 (Office of Radiation Programs, September 1988, EPA-520/1-88-020) Recommended reconsidering

this approach, or at least running a "reality check" on GENII conversions, using the EPA conversion factors, and documenting the GENII model assumptions in an appendix to TM#1

Response The approach suggested would require manual calculation of decay products and committed doses for exposure and commitment periods specific to the OU15 project These calculations have been automated in the GENII code Since the application of the GENII code did not use any of the contaminant fate and transport procedures in GENII, the model results reflect only the dose conversions which are given in the referenced Federal Guidance Reports Therefore, it is more cost-effective to the use GENII code to perform the calculations than to perform them manually, particularly as assumptions and data are changing in response to comments and ongoing data validation Due to the complexity of performing the time-integrated calculations of CEDE manually, a "reality check" calculation has not been added to the text Please refer to the GENII users guide for information regarding validation and verification of the computer code Additional details on validation/verification will be provided in the Draft Phase I RFI/R Report

Comment 5 **[p. 5-5, Section 5.1, Step 1]** Using a *residential* indoor dust loading rate in place of an industrial rate, particularly one that may be 53 5 times greater than the industrial rate in order to be superconservative, is not good practice in risk analysis, it is far beyond the RME and may distort the realistic risks It also sets a precedent that could be much too restrictive at other OUs A more defensible approach would be to determine a site-specific RFP dust loading rate within a range typical of indoor industrial space with filtered ventilation

Response The revised NRC guidance provides an industrial dust loading rate of 100 $\mu g/m^3$, and the TM#1 has been revised in response to other comments to use this value In addition, this value is used only for radionuclide dose assessment - risk-based screening levels have been eliminated from the report

Comment 6 **[p. 5-5, Section 5.1, Step 1]** Using a maximum permissible air concentration for a *minor* instead of an adult in the industrial workplace results in two orders of magnitude exaggeration in the risk level, based on Pu-239/Pu-240 (see p 5-4), and cannot be defended, even for a screening-level risk analysis Recommended adopting the adult exposure factor for the dose-based screening, as was done for the risk-based screening (see p 5-10)

Response The report has been modified to use only adult standards

Comment 7 **[p. 5-6, Section 5.1, Step 2]** Units from Table 5-1 are pCi/g, not mg/kg Correct units and add "3 81 x 10^5 pCi/g" after "uranium-235 "

Response The text has been modified as requested

Comment 8 **[p. 5-10, Section 5.2.3, equation]** Correct intake units to "$(mg/kg\text{-}day)^{-1}$" here and globally throughout the document

Response All references to risk-based screening levels have been removed from the document

Comment 9 **[p. 5-14, Section 5.2.3, Table 5-2 & text]** Note that a THQ (target hazard quotient for a single noncarcinogenic COC) of 0 1, not 1 0, is typical for a screening-level risk analysis as a conservative "point of departure," and is comparable to a TR (target risk level for a single carcinogenic COC) of 10^{-6} For example, see the definition of RBCs (risk-based concentrations) in the Definitions section of the RFP Soil and Sediment IDM risk-based screening procedure (p 9 in SOP FO 29) Note, however, that when developing risk-based PRGs, the total hazard index is 1 0 and the cumulative target risk range is a window of 10^{-6} to 10^{-4}

Response All references to risk-based screening levels have been removed from the document

Comment 10 **[p. 5-15, Section 5.2.3, first para. & Table 5-2]** Add a reference for the rate of indoor dust ingestion--EPA's Standard Default Exposure Factors (OSWER Directive 9285 6-03, March 25, 1991), and also place the reference in Table 5-2

Response All references to risk-based screening levels have been removed from the document

Comment 11 **[p. 5-15, Section 5.2.3, last para.]** Add an EPA reference on the dermal absorption fraction (ABS)

Response All references to risk-based screening levels have been removed from the document

Comment 12 **[p. 6-7, Section 6.4.1.1, para. 2]** There were 12 beryllium detections out of 23 beryllium sample analyses (Table 3 2-5) with an apparent cancer risk level in the 10^{-4} range, in part due to the superconservative risk screening parameters The high equivalent detection limit, itself in the 10^{-4} risk range, may mask other detections, with the likely result that all 23 samples actually exceed the screening level What are the implications of the beryllium detection limit for reaching a reliable decision on disposition of IHSS 179? Recommend inserting the necessary qualifications

Response All references to risk-based screening levels have been removed from the document

Comment 13 **[p. 6-7, Section 6.4.1.1, para. 2]** The indication that no further action (NFA) is warranted with reference to beryllium contamination at IHSS 179 because the IHSS may not be the contaminant *source* does not follow the decision logic and rules set up for risk-based screening On p 6-2 and in Figure 6-1 it is clear that

only one rule applies If concentrations are found in excess of the screening criteria, then the IHSS will be recommended for a formal risk assessment to be presented in TM#2 This discrepancy requires appropriate revisions throughout Section 6 4 (Please note that Area 3 within the actual drum storage area presents a beryllium value in the 10^{-4} risk range, so do 5 of the 7 areas that the perimeter of the drum storage area)

Response TM#1 has been significantly revised, specifically with regard to performance standards and regulatory scope Please refer to added discussion in Section 1 regarding RCRA requirements, and in Section 5 regarding constituents to be evaluated Also, all risk-based screening has been removed from the report and replaced with performance standards based on the RFP RCRA permit

Comment 14 **[p. 6-11, Section 6.5.1.1, para. 2]** IHSS 180 apparently presents the same beryllium problem as IHSS 179, except that the risk range is as high as 10^{-3}, 22 of 49 areas range up to 5,890 mg/kg (Table 3 3-5), as compared to the screening level of 1 24 mg/kg (Table 5-3) The other 27 samples may actually exceed the screening level but are masked by the high detection limit A formal risk assessment will be required to be presented in TM#2 This discrepancy requires appropriate revisions throughout Section 6 5 (Please note that Areas 4 and 10 within the drum storage area reach the 10^{-4} risk range, as do 6 of the 11 areas at the perimeter of the drum storage area)

Response All references to risk-based screening levels have been removed from the document

Comment 15 **[p. 6-7, Section 6.4.1.1, and p. 6-11, Section 6.5.1.1]** As already indicated, the apparent beryllium problem at IHSS 179 and 180 may result more from the superconservative carcinogenic risk screening threshold (1 24 mg/kg in dust, Table 5-3) than from actual high risk levels To illustrate the level of conservatism in TM#1, the maximum dust concentration of beryllium at IHSS 180 is 5,890 mg/kg or more than three orders of magnitude greater than the 10^{-5} risk threshold (1 24 mg/kg) However, the ACGIH Threshold Limit Value (TLV) for airborne beryllium is 0 002 mg/m^3 If the airborne dust concentration is assumed to be 0 0525 mg/m^3, as adopted in TM#1, then the TLV would allow a beryllium concentration in dust of 38,095 mg/kg, which is well above the maximum concentration at IHSS 180

Response All references to risk-based screening levels have been removed from the document

Comment 16 **[p. 6-9, Section 6.4.1.2, Step 4, 2nd para.]** Are the GENII alpha-based results for six radionuclides at IHSS 179 a *summation* of CEDEs for all three pathways--surface dust ingestion, airborne dust inhalation, and direct irradiation? They appear to be single-pathway values For example, the application of EPA exposure-to-dose conversion factors for Pu-239/240 result in 0 21 rem/yr for the inhalation pathway, 0 25 rem/yr for the ingestion pathway, and the direct irradiation pathway may contribute another 0 8 rem/yr (based on gamma dose-rate

of 0 4 mrem/hr in Table 3 2-4), for a summation of 0 86 rem/yr If the Americium-241 value of 3 4 rem/yr is a single-pathway value, then the summation may exceed the total dose ARAR (5 rem/yr) This comment applies equally to IHSS 180 Recommend a full explanation of pathway doses

Response The GENII results presented in TM#1 are summations of doses received through all pathways A more detailed explanation of pathway doses including GENII output will be provided in the Draft Phase I RFI/RI Report

Comment 17 **[p. 6-11, Section 6.5.1.1, para. 2]** It is confusing to state that the equivalent dust concentration at the detection limit for beryllium is 714 mg/kg, corresponding to 1 μg/100 cm^2 in the hot-water rinsate samples, when many values of 179 mg/kg are reported in the tables Recommended a better explanation

Response All references to risk-based screening levels have been removed from the document Therefore, this discussion was no longer required and has also been eliminated

Comment 18 **[p. 6-12, Section 6.5.1.2, Step 3]** At IHSS 180, 7 out of 49 sampling areas surveyed for beta dose-rate exceeded the screening limit of 2 5 mrem/hr or 5 rem/yr, ranging upward to 11 2 mrem/hr or 22 4 rem/yr However, the screening limit may not apply to the beta dose-rate, which is essentially a skin dose, whereas the gamma dose-rate measures the penetrating radiation that is meant to be limited by the ARAR of 2 5 mrem/hr Maybe this can be explained or corrected

Response The dose-rate level of 2 5 mrem/hr was used as a screening level to identify areas requiring additional evaluation The exact source of the beta radiation was not known, therefore the application of additional analyses assuming different beta sources was more appropriate that the use of a less stringent screening level

Comment 19 **[p. 6-16, Section 6.6.1.2]** Apparently, the statement that no radionuclides detected in the hot-water rinsate samples from IHSS 204 indicated potential dust concentrations in excess of the screening level is incorrect According to Table 3 4-3, all 28 areas in Room 32 greatly exceed the screening threshold of 1 14 x 10^3 pCi/g for alpha radiation (based on Pu-239/Pu-240), ranging up to 1 1 x 10^6 pCi/g Also, all 28 areas exceed the threshold of 3 81 x 10^5 pCi/g for beta radiation (based on U-235), ranging up to 1 1 x 10^7 pCi/g Therefore, it appears there should have been a GENII run (or exposure-to-dose conversions) to generate a whole-body dose equivalent in rem/yr so as to determine whether a full risk assessment will be required This omission requires appropriate revisions throughout Section 6 6

Response Smear sample results were not compared to screening levels Hot water rinsate results did not indicate any specific radionuclides above the screening levels Further action with respect to radionuclides at IHSS 204 is deferred because IHSS 204 is in an RCA and future use indicates that this will continue to be the case Therefore, radionuclides at IHSS 204 will be evaluated according to RFP

procedures for RCAs and will not undergo a CERCLA human health evaluation

Comment 20 **[p. 6-25, Section 6.9, Table 6-1]** The Decision Summary Matrix should be revised to remove an NFA indoor chemical evaluation for IHSSs 179 and 180 due to beryllium contamination Also, unless GENII projections (or EPA exposure-to-dose conversions) for IHSS 180 confirm an equivalent whole-body dose <5 rem/yr from alpha and beta activity, the matrix should be revised to remove an NFA indoor radiological evaluation for IHSS 180 Finally, unless the missing exposure-to-dose conversions for IHSS 204 determine an equivalent whole-body dose <5 rem/yr from alpha and beta activity, the matrix should be revised to remove an NFA indoor radiological evaluation for IHSS 204

Response The decision matrix has been moved to Section 7 and is substantially revised

RESPONSE TO EG&G MARCH 15, 1994 COMMENTS ON OPERABLE UNIT 15 DRAFT TECHNICAL MEMORANDUM NUMBER 1, ROCKY FLATS PLANT, INSIDE BUILDING CLOSURES

Comment 1 In the Draft TM, on page 5-5, there is a statement that Kennedy et al (NRC, 1990) use a commercial/industrial indoor dust loading of 1 $\mu g/m^3$ However, in the final edition (1992) of the same document, NRC's "Residual Radioactive Contamination from Decommissioning," apparently no such value is given Instead, values of 100 $\mu g/m^3$ and 10 $\mu g/m^3$ are adopted for indoor air in the "building renovation" and "residential" scenarios, respectively (page 6 11) These values are said to provide "prudently conservative" dust loadings in the workplace or household as a basis for a first-level screening analysis Therefore, it may be misleading to cite a loading rate in the workplace (1 $\mu g/m^3$) that is only a tiny fraction of the residential loading rate (52 5 $\mu g/m^3$, according to Hawley, 1985) when, according to the NRC, the reverse is true Also, it is clear that NRC considers the occupancy of office buildings and light industrial buildings to require a higher dust loading rate than the residential scenario (see page A-22)

In conclusion, the very low commercial/industrial rate of 1 $\mu g/m^3$ should not be cited Instead, a value of 100 $\mu g/m^3$ would be conservative for a screening-level risk analysis, as it assumes an NRC "renovation and decommissioning" scenario This nonresidential dust loading factor would be preferred to the use of any residential factor, although it would result in a more conservative screening level for dust concentration (SL)

Response The dust loading rate has been changed to 100 $\mu g/m^3$ as requested

Comment 2 In the Draft TM, on page 5-5, there is a dust loading value of 53 5 $\mu g/m^3$ adopted from Hawley, 1985, and represented as a typical indoor air dust loading in a residential setting Hawley derives this value from an average level of suspended particulate matter in the outdoor air of 70 $\mu g/m^3$ with the assumption that indoor dust loading is 75% of the outdoor loading But Hawley also reports an apparent contradiction--that indoor dustfall rates ranged from 5% to 30% of outdoor values (page 291) Further, the NRC (1992) assumes that indoor dust loading averages 10% of the outdoor value (see page A 23) Thus, an average long-term outside air concentration of 100 $\mu g/m^3$ (NRC, 1992, page 6 11) results in an average indoor concentration of 10 $\mu g/m^3$

In conclusion, it appears inappropriate to adopt 52 5 $\mu g/m^3$ (75% of 70 $\mu g/m^3$) as a conservative assumption for a *residential* scenario that is contradicted by NRC, 1992 Instead, a value closer to 10 $\mu g/m^3$, such as 30 $\mu g/m^3$ (30% of 100 $\mu g/m^3$), would be conservative for a screening-level risk analysis Although using this value would result in a less restrictive screening threshold, a hypothetical residential scenario for continued use of the OU-15 buildings might be difficult to defend A nonresidential value would be appropriate (see Comment #1 above).

Response See response to Comment #1, above

Comment 3 The worst-case residential indoor surface dustfall rate (80 mg/m^2/day), in the vicinity of a landfill (Hawley, 1985), was assumed in the Draft TM for OU-15 This results in the further assumption of an indoor surface dust loading of 560 mg/m^2 (80 mg/m^2 x 7 days) But this dustfall rate is more typical of buildings with *open windows*, and this surface density is more typical of buildings with *carpeted floors* (Hawley, 1985) Hawley found that an indoor dustfall rate of only 20 mg/m^2/day was more typical of suburban homes, even the highest value for urban homes in Chicago did not exceed 25 mg/m^2/day Therefore, the chemical and radionuclide concentrations in dust that are extrapolated in the TM from the value of 80 mg/m^2/day are likely to be misleading, as is the application of residential data to industrial buildings

In conclusion, a value such as 140 mg/m^2 (20 mg/m^2 x 7 days) instead of 560 mg/m^2 would still be conservative, a further adjustment for bare floors in addition to closed windows would result in an even lower value However, lower values assumed for dustfall and surface dust loading would result in higher estimates of chemical concentration and radioactivity in surface dust

Response According to the NRC's document "Residual Radioactive Contamination from Decommissioning", the given dust concentrations in air are higher for the industrial scenario than for the residential scenario Since that guidance is being used for defining dust concentrations in air, higher surface dust loadings than the residential values would be more consistent Therefore, the higher value of 560 mg/m^2 has been retained

Comment 4 The practical effect of the foregoing substitutions on the identification of a beryllium problem at IHSSs 179 and 180 would be to accentuate the problem This effect may not have any practical significance for two reasons (1) Where beryllium in airborne dust is concerned, there are actual breathing-zone beryllium monitoring data that show none was detected ($<$0 00002 mg/m^3 as an 8-hour TWA, well below the OSHA action level of 0 0005 mg/m^3), (2) Where beryllium in surface dust is concerned, the actual surface smear sample data show that many samples exceeded the control level of 25 μg/ft^2 (as high as 307 μg/ft^2) and, therefore, require surface decontamination in any case

Response TM#1 has been significantly revised, specifically with regard to performance standards and regulatory scope Please refer to added discussion in Section 1 regarding RCRA requirements, and in Section 5 regarding constituents to be evaluated Also, all risk-based screening has been removed from the report and replaced with performance standards based on the RFP RCRA permit Therefore, while further action with regard to beryllium contamination will not be undertaken as part of the closure of OU15 RCRA units, additional evaluation and possible decontamination for beryllium will be required Section 6.8.2 has been added to specifically address the beryllium issue

Comment 5 The practical effect of the foregoing substitutions on identifying a radiation problem at IHSS 204 would be to accentuate the problem This effect may not have any practical significance because the extrapolated alpha and beta concentrations (pCi/g) in surface dust are already two or three orders of magnitude over the dose-based screening levels

Response IHSS 204 will remain in an RCA and therefore is subject to RFP requirements for RCAs

REVIEW COMMENT SHEET

Please review the attached procedure RFP/ER-0015.01-TM.0193 (Number) 0 (Rev) A (Draft) Technical Memorandum Number 1 for OU 15 (Title)

Comment Due Date _____

☐ Internal Review ☑ Parallel Review ☐ Verification ☐ Validation ☐ Revalidation

General (G) comments require resolution but do not require resolution acceptance Mandatory (M) comments require resolution and resolution acceptance
1-88000 PP-004 provides complete definitions of General and Mandatory comments

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
M	75/10	2.2.3	Surveys are conducted IAW ROI's 1.1 Radiation Surveys, 1.2 Beta Radiation Surveys + 3.1 Performance ... Surveys		
G	75/10	2.2.3	Say that Ludlum 12-1A (or equivalent) was used. Same for Ludlum 31.		

POC/Reviewer (Comments not signed by Reviewer/POC will be considered unofficial and not subject to resolution)
☐ No Comments
☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur We acknowledge this concurrence waiver does not affect our responsibility to implement the requirements of this procedure when needed

Jerry Anderson (Name) _____ (Signature)

6974/3519 (Ext /Pager/Fax) 090/Rad Engineering/Koll (Bldg /Dept /AGM) 2/23/94 (Date)

Return to 966-8556 (FAX) Dennis Schubbe (Name) x8709 (Ext) Bldg 080 (Location)

If questions on content please call the SME
Dennis Schubbe (Name) x8709 (Ext)

NOTE These reviews will be completed by qualified reviewers in accordance with 1-88000 PP-004 in concert with 1 88000 PP 001 and 1 88000 PP 003

MAR- 1-94 TUN 8.11

REVIEW COMMENT SHEET

Time Spent on Review ___ hrs

Return to

8556	Dennis Schubbe	8709	080
FAX	Name	Ext.	Location

If questions on content, please call the SME

Name	Ext.

Please review the attached procedure RFP/ER-OU15 01-TM.01-93 (Number) 0 (Rev) A (Draft) Technical Memorandum #1 for OU15 (Title)

Comment Due Date ___

☐ Internal Review ☒ Parallel Review ☐ Verification ☐ Validation ☐ Revalidation

General (G) comments require resolution but do not require resolution acceptance Mandatory (M) comments require resolution and resolution acceptance
1-A03-PPG-004 provides complete definitions of General and Mandatory comments.

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G	2-2	2 1 4th para	This paragrapn describes "Smear Sampling for radiological followed by " and "Finally, removable alpha, This is confusing - do you intend to smear sample first followed by rinsate sampling followed by smear sampling again?		
G	2-7	2 2 3	Same point as above		
G	2-7	2 2 3 2nd para	This is a repeat of Section 2 2 1		
G	2-7	2 2 3 1st para	Removable does not equal direct count measuring		
G	3-14	3 6 1 3 rd para	What project/process undertakes the "under building contamination investigation"?		

POC/Reviewer (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

☐ No Comments

☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

Carol Bicher (Name) CBR (Signature)

9100 (Ext./Pager/Fax) 080/Geosciences/Stiger (Bldg./Dept./AGM) 2-25-94 (Date)

Resolutions Accepted

___ (Initials) ___ (Date)

NOTE These reviews are completed by qualified reviewers in accordance with 1 A03-PPG 004 in concert with 1-A01 PPG-001 and 1-A02 PPG 003

REVIEW COMMENT SHEET

Please review the attached procedure RFP/ER-OU15.01-TM.0103 (Number) 0 (Rev) A (Draft) Technical Memorandum Number 1 for OU 15 (Title)

Comment Due Date _____

☐ Internal Review ☑ Parallel Review ☐ Verification ☐ Validation ☐ Revalidation

General (G) comments require resolution but do not require resolution acceptance Mandatory (M) comments require resolution and resolution acceptance
1-88000-PP-004 provides complete definitions of General and Mandatory comments

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
G			Overall, the report is well written. The following comments deal with grammar, clarity, and content		
M	Throughout report text and tables		"Hit" is slang for a "detected concentration", and should not be used in a report		
M	Throughout text and tables, pg V		"Rad" is slang for "radionuclide", and should not be used in a report		
M	Throughout text and tables		"Chemical" is not a synonym for "organic compound" Water (H_2O) is a chemical, radionuclides are chemicals, etc. Please rewrite to clarify explicitly what is meant, instead of using "chemical" as a layperson might		

POC/Reviewer (Comments not signed by Reviewer/POC will be considered unofficial and not subject to resolution)

☐ No Comments

☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur We acknowledge this concurrence waiver does not affect our responsibility to implement the requirements of this procedure when needed

Mary A Siders (Name) Mary A Siders (Signature)

x6133 p7473 (Ext /Pager/Fax) 080/ES&E/Stager (Bldg /Dept /AGM) 3/2/94 (Date)

Return to 966-8556 (FAX) Dennis Schubbe (Name) x8709 (Ext) Bldg 080 (Location)

If questions on content please call the SME

Dennis Schubbe (Name) x8709 (Ext)

NOTE These reviews will be completed by qualified reviewers in accordance with 1 88000-PP-004 in concert with 1 88000 PP 001 and 1 88000 PP 003

Review comments for document RFP/ER-OU15 01-TM.01-93 (Number) 0 (Rev) A (Draft)

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
M	p 1-1 and throughout text (pages flagged)		Confusion over use of "which" and "that" As a relative pronoun, "that" is used only to introduce restrictive clauses, whereas "which" is used to introduce nonrestrictive clauses.		
M	Flagged in text		Incorrect use of "comprise" as a synonym for "compose" Parts comprise the whole, but the whole is composed of parts		
G	Flagged in text		Inconsistent use of commas in lists (x, y, and z vs. x, y and z)		
M			"Data" is the plural of "datum", therefore data are . or data were		
G	Flagged in text		Incorrect usage of "since" as a synonym for "because", and "while" as a synonym for "whereas". This is a common mistake, but still merits correction. "Since" and "while" refer to time (eg., "since 1955 ..."). "While" implies the simultaneous occurrence of events; "whereas" should be used if no temporal association is intended		

POC/Reviewer (Comments not signed by the Reviewer/POC will be considered as unofficial comments)

Mary A Siders (Name) Mary A Siders (Signature) 3/2/94 (Date)

Resolutions Accepted

(Initials) (Date)

REVIEW COMMENT SHEET

Please review the attached procedure RFP/ER-OU15 01-TM.0193 (Number) 0 (Rev.) A (Draft) Technical Memorandum Number 1 for OU 15 (Title)

Comment Due Date _____

☐ Internal Review ☑ Parallel Review ☐ Verification ☐ Validation ☐ Revalidation

General (G) comments require resolution but do not require resolution acceptance Mandatory (M) comments require resolution and resolution acceptance
1-88000-PP-004 provides complete definitions of General and Mandatory comments

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
G	Throughout text		"OU 15" will read better if hyphenated, or written as one word (OU-15 or OU15)		
M	Throughout text		Readability and clarity of meaning are impaired by unhyphenated strings of modifiers. To avoid unintended misreading, please consider the following recommended hyphenations (Can be done by global search and replace") Cyanide Bench-Scale Treatment Original Uranium-Chip Roaster hot-water rinsate samples compressed-gas cylinder dust-loading value direct-release mechanism (Caution: do not hyphenate unless both terms are used as modifiers (e.g. "compressed gas", where "gas" is the noun, should NOT be hyphenated, etc.)		

POC/Reviewer (Comments not signed by Reviewer/POC will be considered unofficial and not subject to resolution)
☐ No Comments
☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur We acknowledge this concurrence waiver does not affect our responsibility to implement the requirements of this procedure when needed

Name _____ Signature _____

Ext /Pager/Fax _____ Bldg /Dept /AGM _____ Date _____

Return to
966-8556 (FAX) Dennis Schubbe (Name) x8709 (Ext) Bldg 080 (Location)

If questions on content, please call the SME
Dennis Schubbe (Name) x8709 (Ext)

NOTE These reviews will be completed by qualified reviewers in accordance with 1 88000 PP 004 in concert with 1-88000 PP-001 and 1 88000 PP 003

REVIEW COMMENT SHEET

Please review the attached procedure RFP/ER-0115.01-TM.0193 (Number) 0 (Rev.) A (Draft) Technical Memorandum Number 1 for OU15 (Title)

Comment Due Date: _____

☐ Internal Review ☑ Parallel Review ☐ Verification ☐ Validation ☐ Revalidation

General (G) comments require resolution but do not require resolution acceptance Mandatory (M) comments require resolution and resolution acceptance
1 88000-PP 004 provides complete definitions of General and Mandatory comments

ITEM G or M	PAGE	SECTION OR STLP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
M	2-9, 2-16, 2-18, 2-19	2.1.7,	Please revise as "Table and Fume Hood in the Cyanide Bench-Scale Laboratory"		
M	p 3-2 3-4, 3-6 3-8, 3.11 3-13,	3.1 3.2, 3.3 3.1, 3.5, 3.6,	This sentence has a string of eight modifiers for the noun 'results'. Please rewrite, using suggested hyphenation and rearrangement		
M	Tables 3.1-1 through Table 3.6-4 (about 30 pages)		'Chemical' incorrectly used as a synonym for 'organic', strings of modifiers, use of slang ('hit')		
			Address all flagged pages. Red flags are more critical than green flags, but please look at comments in the draft report		

POC/Reviewer (Comments not signed by Reviewer/POC will be considered unofficial and not subject to resolution)
☐ No Comments
☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur We acknowledge this concurrence waiver does not affect our responsibility to implement the requirements of this procedure when needed

Mary A Sievers (Name) _____ (Signature)

6933 7773 (Ext /Pager/Fax) 080/ ESHE / Stage (Bldg /Dept /AGMO) 3/2/94 (Date)

Return to 966-8556 (FAX) Dennis Schubbe (Name) x8709 (Ext) Bldg 080 (Location)

If questions on content please call the SML
Dennis Schubbe (Name) x8709 (Ext)

OE These reviews will be completed by qualified reviewers in accordance with 1-88000 PP 004 in concert with 1-88000 PP 001 and 1 88000 PP 003

REVIEW COMMENT SHEET

Please review the attached procedure RFP/ER-OU15 01-TM 01-93 (Number) 0 (Rev) A Draft (Draft) Phase I RFI/RI Technical Memorandum No 1, OU 15, 2/94 (Title)

Comment Due Date March 4, 1994

☐ Internal Review ☐ Parallel Review ☐ Verification ☐ Validation ☐ Revalidation

QA X Peer ____

General (G) comments require resolution but do not require resolution acceptance Mandatory (M) comments require resolution and resolution acceptance 1-88000-PP-004 provides complete definitions of General and Mandatory comments

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
G	2-10	2 5	first sentence It seems the original data sheets have been transcribed into this document The originals should be maintained as part of the QA record for this project		
G	3-8	3 3 2	first paragraph,last sentence editorial - change " was in scuffed " to " was scuffed "		
G	7-13	7 3 15	This section of the work plan discusses plotting the survey results on an IHSS sketch This would be a good visual aid if formatted for inclusion in either this TM or the RFI/RI report		
M	7-14	7 3 2 1	This section of the work plan calls for 40 smear samples but the TM (page 2-2) only documents the collection of 30 samples This discrepancy should be explained in the TM as it is a DQO/PARCC issue		

POC/Reviewer (Comments not signed by Reviewer/POC will be considered unofficial and not subject to resolution)

☐ No Comments

☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur We acknowledge this concurrence waiver does not affect our responsibility to implement the requirements of this procedure when needed

C H Hines
Name

[signature]
Signature

3905
Ext./Pager/Fax

CSU / EGS 11 / STREC
Bldg /Dept /AGM

3-4-94
Date

Return to

FAX ____ Name D SCHUBBE Ext 8709 Location CSC

If questions on content, please call the SME

Name D SCHUBBE Ext 8709

NOTE These reviews will be completed by qualified reviewers in accordance with 1-88000-PP 004 in concert with 1-88000-PP-001 and 1-88000-PP-003

P3F0011 001

REVIEW COMMENT SHEET (continued)

Review comments for document RFP ER OU15 01-TM 01 93 (Number) 0 (Rev) A (Draft)

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
M	7-15,16	7 3 2 2	The work plan states that 32 locations will be smear sampled Section 2 1 2, page 2 2 of the TM indicates only 23 samples were collected This discrepancy should be explained in the TM as it is a DOO/PARCC issue		
M	7 17	7 3 2 3	The work plan states that 55 locations will be smear sampled Section 2 1 3 page 2-3 of the TM indicates only 49 samples were collected This discrepancy shoud be explained in the TM as it is a DQO/PARCC issue		
M	7 19	7 3 2 1	The work plan states that 41 locations will be smear sampled in Rooms 501/502 Section 2 1 4 page 2-3 of the TM indicates only 31 locations were collected Is the explanation that 10 additional smears were collected in the wash/drum room which was not specifically outlined in the workplan?		
G	7 20	7 3 2 5	last paragraph The work plan states that two rinsates were planned for Stage 1 and an extra would be taken if IHSS associated contamination was found outside of the IHSS boundary The TM Section 2 1 5, page 2-4 says three rinsates were collected Is the correct assumption that contamination was found outside the boundary or is there another explanation that could be added to the TM text		
G	3 2	3 0	first paragraph, second sentence A data conversion is discussed but the equation/specifics are not provided or referenced Additional text or a reference would be informative to validate the results		
M	tables	3 6 3	A legend for the chemical result qualifiers is needed		
M	tables	3 6 3	The QA/QC sample results are not presented They should be included Will all the sample analytical results (hits non hits) be provided in the RFI/RI report?		
G	tables	3 6 3	The tables for the smear sample results and beta/gamma dose-rate survey data do not indicate the date on which the surveys were performed		
M	tables	3 6 3	The tables for the 'Hot Water Rinsate Radionuclide Results' have a column heading of "Error" No explanation of what this "error" is was found in the text Is it instrument error calculation error, analytical error ?		
G	Tables 3 1 3, 3 3 3	3 6 3	An explanation of the increase in the alpha, beta activity for pre versus post- rinsate samples would be informative		

POC/Reviewer (Comments not signed by the Reviewer/POC will be considered as unofficial comments)

C. H. HAYES (Name) — Signature — 3-4-94 (Date)

Resolutions Accepted

Initials — Date

REVIEW COMMENT SHEET (continued)

Review comments for document RFP/EP OU15 01-TM 01 93 (Number) 0 (Rev) A (Draft)

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
G M	Table 3 2 1	3 6 3	1) Reformat the columns so the detection limits are centered under their heading 2) No detection limits were reported for 1,3 Isobenzofurandione, 4,4-Isopropylidenediphenol, or 2 ethyl 1-hexanol		
M	Tables 3 2 2 3 3 2 3 5 1 3 6 1	3 6 3	A variation exists in the number of significant figures between the reported results and the corresponding detection limits The same number of sig figs should be used		
G M	Table 3 2 5	3 6 3	1) Some of the sampling locations exhibit an increase in the pre- vs post-rinsate smear An explanation/hypothesis might be informative 2) No reported value is present for Area 23 - pre-rinsate smear sample		
G M	Table 3 3 1	3 6 3	1) Reformat the columns so the detection limits are centered under their heading 2) No detection limits are reported for 1 3 Isobenzofurandione and 4,4-Isopropylidenediphenol		
M	Table 3 4 1	3 6 3	Detection limits for certain chemicals are missing from the table		
M	Table 3 4 2	3 6 3	1) No detection limits are listed for Samples BU00047ER and BU00050ER 2) An explanation of why a variability exists between detection limits between different samples for the same analyte would be informative		
M	Table 3 5-2	3 6 3	Results and detection limits were not reported for Gross Alpha and Gross Beta		
G	5 6	3	Providing the calculation/conversion in the text might be informative to the reader		
G	5 8	5 2 1	Since future land use has been such a controversial topic at RFP, a reference to this accepted scenario might diminish rebuttal in the future		
G	6 3	6 2	An evaluation of the trip blank analyses might provide more supporting evidence for the rationale in this section		
G	6-8	4	A reference to Table 3 2 3 would be helpful to the reader to confirm the information		

POC/Reviewer (Comments not signed by the Reviewer/POC will be considered as unofficial comments)

C. A. Hayes — Name

Clark H. Hayes — Signature

3-4-94 — Date

Resolutions Accepted

Initials

Date

REVIEW COMMENT SHEET (continued)

Review comments for document RFP'ER-OU15 01-TM 01 93 (Number) 0 (Rev) A (Draft)

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
M	6 3	6 2	first sentence The words "almost every" should be quantified This will be consistent with other words used throughout this section which connote absoluteness "none , "all", 'every"		
M	6 8	6 4 1 2	Step 2 second sentence The words "almost all" should be quantified		
M	6 11	6 5 11	second paragraph first sentence The word many" should be quantified third sentence What is the significance of the "patterns of detection" and relative magnitude" that leads to the conclusion that the Be may be associated with other operations?		
M	6 12	6 5 1 2	Step 2, second sentence The word several" should be quantified Step 4, first sentence The work "some" should be quantified		
M	6 24	6 8 2 2	first sentence The word several" should be quantified		
M			DQOs are not adequately addressed - PRECISION 1) what were the ACTUAL percentages of duplicates analyzed, with respect to EACH MATRIX TYPE and EACH ANALYTICAL SUITE? We don t know whether the planned DQO of 5% was achieved or not, only that it was planned 2) actual percentages of samples within and exceeding the RPD tolerances (per MATRIX TYPE and per ANALYTICAL SUITE) should be given as part of the summary not vague generalities such as "significant variability", "very few", "small percentages" etc		

POC/Reviewer (Comments not signed by the Reviewer/POC will be considered as unofficial comments)

C H Hayes — Name

Signature — Date: 3-4-94

Resolutions Accepted

Initials — Date

REVIEW COMMENT SHEET (continued)

Review comments for document RFP/ER OU15 01-IM 01-93 (Number) 0 (Rev) A (Draft)

ITEM G or M	PAGE	SECTION OR STEP	COMMENT	RESOLUTION	Resolution accepted INIT/DATE
M			DQOs are not adequately addressed -- ACCURACY did we meet the DQOs for accuracy? at the very least, a summary of the analytical methods actually used (per matrix and per analytical suite) should be compared with the detection limits required to corroborate that the planned accuracies were obtained a table would serve this purpose well accuracy requirements are project specific,		
M			DQOs are not adequately addressed - REPRESENTATIVENESS representativeness is based primarily on quality of the Work Plan, and subsequent adherence to the Work Plan -- this is why deviations from the Work Plan need to be communicated and evaluated in the report, especially with respect to representativeness of the data (w/ respect to the 3 dimensional body of material known as the Operable Unit or as individual IHSS's), provide better qualification of representativeness		
M			DQOs are not adequately addressed -- COMPLETENESS whereas percentages of hits per # of samples seem to be an important function in determining COCs whether these data subsets are COMPLETE is totally ignored based on the absence of any completeness data in the report, the QAPjP and EPA guidelines provide equations for completeness -- use them to quantify completeness and draw subsequent conclusions on data usability		
M			DQOs are not adequately addressed - COMPARABILITY this is primarily with respect the types of analytical methods used, and their respective detection limits (i e , do they compare), and to a lesser degree, consistency in sampling methods		

POC/Reviewer (Comments not signed by the Reviewer/POC will be considered as unofficial comments)

Name _____ Signature _____ Date _____

Resolutions Accepted

Initials _____ Date _____

[Section 2.0, Figure 2-1] The explanation in the drawing legend that an IHSS location is shown by the hatched area representing the location painted on the floor is confusing The actual area sampled for each IHSS is considerably more extensive than the hatched area in the drawing The TM goes on to evaluate all IHSS data, not just the data for the hatched areas Recommend a clarification

[p. 3-1. Section 3.0, para. 2] What are the implications of mixing both validated and unvalidated data for the hot-water rinsate sample results? What proportion of the data is unvalidated? Should the dose-based or risk-based screening of sample results be identified as preliminary and revisited when the Phase I RFI/RI Report is produced? Recommend inserting appropriate qualifications

[p. 5-1, Section 5.0, para. 2] Deliberately overestimating a risk level using worst-case exposure assumptions instead of RME (Reasonable Maximum Exposure) is not standard practice, even for a screening-level risk analysis Worst-case assumptions can result in forcing a full risk assessment for a contaminant that does not necessarily exceed the RME risk-based concentration, as may be the case with beryllium, for example, at two IHSSs within OU-15 (see further comments) Recommend reconsidering this approach

[p. 5-2, Section 5.1, last para.] Dose conversions made using the Hanford GENII computer code are not standard practice, model assumptions characteristic of Hanford may not apply to the RFP A more cost-effective method is to apply the exposure-to-dose conversion factors for ingestion and inhalation of soil or dust that are provided in EPA Federal Guidance Report No 11 (Office of Radiation Programs, September 1988, EPA-520/1-88-020) Recommend reconsidering this approach, or at least running a "reality check" on GENII conversions, using the EPA conversion factors, and documenting the GENII model assumptions in an appendix to TM#1

[p. 5-5, Section 5.1, Step 1] Using a *residential* indoor dust loading rate in place of an industrial rate, particularly one that may be 52 5 times greater than the industrial rate in order to be superconservative, is not good practice in risk analysis, it is far beyond the RME and may distort the realistic risks It also sets a precedent that could be much too restrictive at other OUs A more defensible approach would be to determine a site-specific RFP dust loading rate within a range typical of indoor industrial space with filtered ventilation

[p. 5-5, Section 5.1, Step 1] Using a maximum permissible air concentration for a *minor* instead of an adult in the industrial workplace results in two orders of magnitude exaggeration in the risk level based on Pu-239/Pu-240 (see p 5-4) and cannot be defended, even for a screening-level risk analysis Recommend adopting the adult exposure factor for the dose-based screening, as was done for the risk-based screening (see p 5-10)

[p. 5-6, Section 5.1, Step 2] Units from Table 5-1 are pCi/g, not mg/kg Correct units and add "3 81 x 10^5 pCi/g" after "uranium-235 "

[p. 5-10, Section 5.2.3, equation] Correct intake units to "$(mg/kg\text{-}day)^{-1}$" here and globally throughout the document

REVIEW OF OU-15 TM#1 (continued)

[p 5-14, Section 5.2.3, Table 5-2 & text] Note that a THQ (target hazard quotient for a single noncarcinogenic COC) of 0 1 not 1 0, is typical for a screening-level risk analysis as a conservative 'point of departure,' and is comparable to a TR (target risk level for a single carcinogenic COC) of 10^{-6} For example, see the definition of RBCs (risk-based concentrations) in the Definitions section of the RFP Soil and Sediment IDM risk-based screening procedure (p 9 in SOP FO 29) Note however, that when developing risk-based PRGs, the total hazard index is 1 0 and the cumulative target risk range is a window of 10^{-6} to 10^{-4}

[p. 5-15. Section 5.2.3, first para. & Table 5-2] Add a reference for the rate of indoor dust ingestion—EPA's Standard Default Exposure Factors (OSWER Directive 9285 6-03, March 25, 1991) and also place the reference in Table 5-2

[p. 5-15, Section 5.2.3, last para.] Add an EPA reference on the dermal absorption fraction (ABS)

[p. 6-7, Section 6 4.1.1, para. 2] There were 12 beryllium detections out of 23 beryllium sample analyses (Table 3 2-5) with an apparent cancer risk level in the 10^{-4} range, in part due to the superconservative risk screening parameters The high equivalent detection limit, itself in the 10^{-4} risk range, may mask other detections, with the likely result that all 23 samples actually exceed the screening level What are the implications of the beryllium detection limit for reaching a reliable decision on disposition of IHSS 179? Recommend inserting the necessary qualifications

[p. 6-7, Section 6.4.1.1, para. 2] The indication that no further action (NFA) is warranted with reference to beryllium contamination at IHSS 179 because the IHSS may not be the contaminant *source* does not follow the decision logic and rules set up for risk-based screening On p 6-2 and in Figure 6-1 it is clear that only one rule applies if concentrations are found in excess of the screening criteria, then the IHSS will be recommended for a formal risk assessment to be presented in TM#2 This discrepancy requires appropriate revisions throughout Section 6 4 (Please note that Area 3 within the actual drum storage area presents a beryllium value in the 10^{-4} risk range, so do 5 of the 7 areas at the perimeter of the drum storage area)

[p. 6-11. Section 6.5.1.1, para 2] IHSS 180 apparently presents the same beryllium problem as IHSS 179, except that the risk range is as high as 10^{-3}. 22 of 49 areas range up to 5,890 mg/kg (Table 3 3-5) as compared to the screening level of 1 24 mg/kg (Table 5-3) The other 27 samples may actually exceed the screening level but are masked by the high detection limit A formal risk assessment will be required to be presented in TM#2 This discrepancy requires appropriate revisions throughout Section 6 5 (Please note that Areas 4 and 10 within the drum storage area reach the 10^{-4} risk range, as do 6 of the 11 areas at the perimeter of the drum storage area)

[p. 6-7. Section 6.4.1.1, and p. 6-11, Section 6.5.1.1] As already indicated, the apparent beryllium problem at IHSS 179 and 180 may result more from the superconservative carcinogenic risk screening threshold (1 24 mg/kg in dust, Table 5-3) than from actual high risk levels To illustrate the level of conservatism in TM#1, the maximum dust concentration of beryllium at IHSS 180 is 5,890 mg/kg or more than three orders of magnitude greater than the 10^{-6} risk threshold (1 24 mg/kg) However the ACGIH Threshold Limit Value (TLV) for airborne beryllium is 0 002 mg/m^3 If the airborne dust concentration is assumed to be 0 0525 mg/m^3, as adopted in TM#1, then the TLV would allow a

beryllium concentration in dust of 38 095 mg/kg, which is well above the maximum concentration at IHSS 180

[p. 6-9, Section 6.4.1.2, Step 4, 2nd para.] Are the GENII alpha-based results for six radionuclides at IHSS 179 a *summation* of CEDEs for all three pathways—surface dust ingestion, airborne dust inhalation and direct irradiation? They appear to be single-pathway values For example, the application of EPA exposure-to-dose conversion factors for Pu-239/240 result in 0 21 rem/yr for the inhalation pathway, 0 25 rem/yr for the ingestion pathway, and the direct irradiation pathway may contribute another 0 8 rem/yr (based on gamma dose-rate of 0 4 mrem/hr in Table 3 2-4), for a summation of 0 86 rem/yr If the Americium-241 value of 3 4 rem/yr is a single-pathway value, then the summation may exceed the total dose ARAR (5 rem/yr) This comment applies equally to IHSS 180 Recommend a full explanation of pathway doses

[p. 6-11, Section 6.5.1.1, para. 2] It is confusing to state that the equivalent dust concentration at the detection limit for beryllium is 714 mg/kg, corresponding to 1 ug/100 cm^2 in the hot-water rinsate samples, when many values of 179 mg/kg are reported in the tables Recommend a better explanation

[p. 6-12, Section 6.5.1.2, Step 3] At IHSS 180, 7 out of 49 sampling areas surveyed for beta dose-rate exceeded the screening limit of 2 5 mrem/hr or 5 rem/yr, ranging upward to 11 2 mrem/hr or 22 4 rem/yr However, the screening limit may not apply to the beta dose-rate, which is essentially a skin dose, whereas the gamma dose-rate measures the penetrating radiation that is meant to be limited by the ARAR of 2 5 mrem/hr Maybe this can be explained or corrected

[p. 6-16, Section 6.6.1.2.] Apparently, the statement that no radionuclides detected in the hot-water rinsate samples from IHSS 204 indicated potential dust concentrations in excess of the screening level is incorrect According to Table 3 4-3, all 28 areas in Room 32 greatly exceed the screening threshold of 1 14 x 10^3 pCi/g for alpha radiation (based on Pu-239/Pu-240), ranging up to 1 1 x 10^6 pCi/g Also, all 28 areas exceed the threshold of 3 81 x 10^3 pCi/g for beta radiation (based on U-235), ranging up to 1 1 x 10^7 pCi/g Therefore, it appears there should have been a GENII run (or exposure-to-dose conversions) to generate a whole-body dose equivalent in rem/yr so as to determine whether a full risk assessment will be required This omission requires appropriate revisions throughout Section 6 6

[p. 6-25, Section 6.9, Table 6-1] The Decision Summary Matrix should be revised to remove an NFA indoor chemical evaluation for IHSSs 179 and 180 due to beryllium contamination Also, unless GENII projections (or EPA exposure-to-dose conversions) for IHSS 180 confirm an equivalent whole-body dose <5 rem/yr from alpha and beta activity, the matrix should be revised to remove an NFA indoor radiological evaluation for IHSS 180 Finally, unless the missing exposure-to-dose conversions for IHSS 204 determine an equivalent whole-body dose <5 rem/yr from alpha and beta activity, the matrix should be revised to remove an NFA indoor radiological evaluation for IHSS 204

D R A F T 03/15/94

CLARIFICATION OF DUST LOADING VALUES TO BE ASSUMED AT OU-15 IHSSs

The following comments are in addition to previous comments presented on the Draft of Technical Memorandum No 1 for OU-15 Suggestions are made for substituting several assumptions that affect the screening risk levels for beryllium in airborne dust at IHSSs 179 and 180, as well as for alpha and beta radiation in airborne dust at IHSS 204

Comment #1 In the Draft TM, on page 5-5, there is a statement that Kennedy et al (NRC, 1990) use a commercial/industrial indoor dust loading of 1 ug/m^3 However, in the final edition (1992) of the same document, NRC's "Residual Radioactive Contamination from Decommissioning," apparently no such value is given Instead, values of 100 ug/m^3 and 10 ug/m^3 are adopted for indoor air in the "building renovation" and "residential" scenarios, respectively (page 6 11) These values are said to provide "prudently conservative" dust loadings in the workplace or household as a basis for a first-level screening analysis Therefore, it may be misleading to cite a loading rate in the workplace (1 ug/m^3) that is only a tiny fraction of the residential loading rate (52 5 ug/m^3, according to Hawley, 1985) when, according to the NRC, the reverse is true Also, it is clear that NRC considers the occupancy of office buildings and light industrial buildings to require a higher dust loading rate that the residential scenario (see page A-22)

In conclusion, the very low commercial/industrial rate of 1 ug/m^3 should not be cited Instead, a value of 100 ug/m^3 would be conservative for a screening-level risk analysis, as it assumes an NRC "renovation and decommissioning" scenario This nonresidential dust loading factor would be preferred to the use of any residential factor, although it would result in a more conservative screening level for dust concentration (SL)

Comment #2 In the Draft TM, on page 5-5, there is a dust loading value of 52 5 ug/m^3 adopted from Hawley, 1985, and represented as a typical indoor air dust loading in a residential setting Hawley derives this value from an average level of suspended particulate matter in the outdoor air of 70 ug/m^3 with the assumption that indoor dust loading is 75% of the outdoor loading But Hawley also reports an apparent contradiction—that indoor dustfall rates ranged from 5% to 30% of outdoor values (page 291) Further, the NRC (1992) assumes that indoor dust loading averages 10% of the outdoor value (see page A 23) Thus, an average long-term outside air concentration of 100 ug/m^3 (NRC, 1992, page 6 11) results in an average indoor concentration of 10 ug/m^3

In conclusion, it appears inappropriate to adopt 52 5 ug/m^3 (75% of 70 ug/m^3) as a conservative assumption for a *residential* scenario that is contradicted by NRC, 1992 Instead, a value closer to 10 ug/m^3, such as 30 ug/m^3 (30% of 100 ug/m^3), would be conservative for a screening-level risk analysis Although using this value would result in a less restrictive screening threshold, a hypothetical residential scenario for continued use of the OU-15 buildings might be difficult to defend A nonresidential value would be appropriate (see Comment #1 above)

CLARIFICATION OF DUST LOADING VALUES TO BE ASSUMED AT OU-15 IHSSs (continued)

Comment #3 The worst-case residential indoor surface dustfall rate (80 mg/m^2/day), in the vicinity of a landfill (Hawley, 1985), was assumed in the Draft TM for OU-15 This results in the further assumption of an indoor surface dust loading of 560 mg/m^2 (80 mg/m^2 x 7 days) But this dustfall rate is more typical of buildings with *open windows*, and this surface density is more typical of buildings with *carpeted floors* (Hawley, 1985) Hawley found that an indoor dustfall rate of only 20 mg/m^2/day was more typical of suburban homes, even the highest value for urban homes in Chicago did not exceed 25 mg/m^2/day Therefore, the chemical and radionuclide concentrations in dust that are extrapolated in the TM from the value of 80 mg/m^2/day are likely to be misleading, as is the application of residential data to industrial buildings

In conclusion, a value such as 140 mg/m^2 (20 mg/m^2 x 7 days) instead of 560 mg/m^2 would still be conservative, a further adjustment for bare floors in addition to closed windows would result in an even lower value However, lower values assumed for dustfall and surface dust loading would result in higher estimates of chemical concentration and radioactivity in surface dust

Comment #4 The practical effect of the foregoing substitutions on the identification of a berrylium problem at IHSSs 179 and 180 would be to accentuate the problem This effect may not have any practical significance for two reasons (1) Where beryllium in airborne dust is concerned, there are actual breathing-zone beryllium monitoring data that show none was detected (<0 00002 mg/m^3 as an 8-hour TWA, well below the OSHA action level of 0 0005 mg/m^3), (2) Where beryllium in surface dust is concerned, the actual surface smear sample data show that many samples exceeded the control level of 25 ug/ft^2 (as high as 307 ug/ft^2) and, therefore, require surface decontamination in any case

Comment #5 The practical effect of the foregoing substitutions on identifying a radiation problem at IHSS 204 would be to accentuate the problem This effect may not have any practical significance because the extrapolated alpha and beta concentrations (pCi/g) in surface dust are already two or three orders of magnitude over the dose-based screening levels